Textile World

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Textile World

DECEMBER, 1938

DOUGLAS G. WOOLF, *Editor*

What, if Any, Is the Gain?

DURING the last quarter-century, we have traded security for insecurity. What we have gotten as trade-in, no one yet knows. That we have gotten something, goes without doubt. That we made a good trade, is subject to much doubt.

In this process, no individual, no class, no nation has been the main instigator, or the principal beneficiary, or the outstanding gainer. All of us have been responsible; all of us have lost. What all or any of us have gained is the primary question of this editorial.

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To narrow this discussion down to the field of TEXTILE WORLD: When this writer first entered the industry he found an established order of things. It included a group of great companies which were regarded by the financial world as solid as the Bank of England—to use an expression which is still a fair gage, but less so than it was then. Many of those companies are now defunct; many others have been losing money steadily in recent years. Other smaller companies have gone over a rough road since that time—and many have succumbed. Many others, though still extant, have reason to wonder whether they can keep that way long.

What has been true of companies has been equally true of individuals. Many men who belonged to the plutocracy of the textile industry have sunk to low estate. This process has not stopped. Within recent years, men who stood high in earning power and in importance have had a hard time keeping a toe-hold.

Nor can those who are still holding on feel any sense of security. Presidents, treasurers, chief engineers, chief chemists, sales managers, and others of the so-called top flight have fallen. And mostly through no fault of their own.

That, to this writer, has been the main tragedy of the last decade. Copy-book maxims have been scrapped. Many a man who followed his conscience most scrupulously has found himself a victim of forces for which he, as an individual, had no apparent responsibility.

What, if any, has been the good that has come out of all this? The present writer doesn't belong to the harsh school that believes all hardship is good for the soul. But, given a hardship, the obvious answer is to get some good out of it.

In the present mess, the main possibility of good is in the discovery of a new attitude. That attitude means, first of all, getting rid of the weak spots. And one of the main weak spots of our industrial set-up has been smugness. A sense of God-given prerogative infested industry before 1929. It infested the textile industry before 1923—because that was the beginning date of the textile deflation.

Since both those times, smugness has been gradually disappearing. It is a hardy trait however. It comes to life again at the least provocation. It flared up during our false recovery beginning in 1933. Fortunately, or unfortunately, the so-called recession in the fall of 1937 mowed it down. Whether it re-appears in the present recovery trend is up to all of us.

Another possibility of good lies in the direction of cooperation. An old, hackneyed term, we admit —but still a ray of real hope. The textile industry has tried it with good results in recent years. It can still try it again.

In fact, there is no choice today. With a world sunk in the madness of a few wild men, drunk with a sense of perverted power, there is nothing to do but to cooperate, first in defense, and then in offense:

Defense against hate and stupidity. Offense toward a re-assertion of individual rights and opportunities.

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That is why we cheer the Pacific Mills statement in this issue. (See page 55). That is why we urged textile solidarity on this page a month ago. That is why we dedicate again this publication to the realization of those broader aims which will re-establish security in textile manufacture.

We are now all in one boat. Whether we get to land depends upon whether we will all pull at the oars.

THE EDITOR SAYS

Henry Disowns the Two-Faced Brat

APPARENTLY the Department of Agriculture is trying very hard to disown all responsibility for the two-price subsidy plan. We learn that, shucks, there wasn't anything to it at all—just a leetle study that was being conducted. And one dispatch from Washington states that "as a matter of fact the study was forced upon the Department of Agriculture by the press"!

Now, we don't blame the department for disclaiming parenthood of the little two-faced brat. It was nothing but a trouble-maker from the time it was born.

Nevertheless we think the textile industry, in its own interest, should try to keep the record of parentage straight, so that it will be able to recognize the next brain-child.

Every bit of evidence that we have in a voluminous file on this two-price-plan case points definitely to the Department of Agriculture as being both parents, and a rich uncle besides. In fact at one time, when some big bad textile men were saying nasty things about the off-spring, the Department threatened that if they didn't "cooperate" by cutting costs so that low-income families might buy cotton goods at bargain prices, the Federal Government might enter the textile business! And that proposal, as R. B. Pitts, president of Hermitage Cotton Mills, Camden, S. C., points out, "is not only ridiculous, but also a little tragic."

Nor do we sympathize too much with the claim advanced recently that the two-price plan is perfectly harmless—and that we operate under a multi-price plan anyway, as witness the variations between prices in a department store's men's-shop and at its basement counter. The difference between a multi-price system operating under a free economy and a two-price system operated by governmental fiat is so obvious as to require no further comment.

Frankly, we think the Department has "sold its papers" pretty well in the last few weeks. It has all but unloaded responsibility for the two-price plan from its own shoulders to that of the press—and has converted some, who doubted that miracle, to the belief that the plan wasn't so bad after all.

But the farm surplus problem is still with us—and it seems advisable not to let anything blind our eyes. We'll all need our full vision when Henry Wallace has his next brain-child.

Hurrah for What?

IN our March issue, this year, we almost treasonable to criticize the trade agreement just concluded with the United Kingdom. World events of recent months have made people eager to grasp at any incentive to world peace. And these reciprocal treaties are advanced as such by their proponents.

At the risk of treason, however, we wish again to point to a forgotten man: a manufacturer who runs a cotton mill or a woolen mill. For years, he has seen his market contracting, his profit margin shrinking to less than nothing. He has paid through the nose with new taxes of every description. His wage costs have advanced steadily. And as a final blow, the Administration hands a slice of his business to foreign competitors.

Is this man supposed to get up and cheer about it? Is he supposed to recite the Hull credo on his knees at night—and then go to bed serene in the thought that he has made the world safe for democracy?

Well, he just isn't going to do it. To him—philosophy or no philosophy—the treaty is one more blow.

And the textile industry as a whole has another source of bitterness: It appears now that those who predicted the futility of the elaborate hearings last spring knew what they were talking about. The industry made a bullet-proof case against tariff reductions. And yet its representatives might as well have stayed home from Washington and saved the carfare.

Some day textile men are going to get disgusted and quit attending hearings held by committees whose minds are made up in advance. It's getting easy to spot them.

The Third Shift

TWO years ago, at the annual convention of North Carolina Cotton Manufacturers Association, O. Max Gardner handed out some frank talk. Speaking on "The Menace of the Third Shift," he predicted that deviation from a two-shift policy would mark the decline and fall of the industry. At that time, we stated editorially that Gov. Gardner's speech was one of those rare events which lift meetings out of the routine.

Consequently we were delighted to hear Arthur K. Winget, retiring president of the same association, refer at this year's meeting to the Gardner speech of two years ago. Urging his hearers to re-read that talk, Mr. Winget predicted that three-shift operation would be disastrous.

In the two years since 1936, the industry has had plenty of grief. No small part of it has been due to the unbridled production policies followed in that hectic boom which finally exploded in the fall of 1937. A sure way to start another disaster is by general adoption of the third-shift. A protection against such a catastrophe is general observance of the two-shift limitation.

The F.T.C. Is There

IN our March issue, this year, we asked the question: "Where is the Federal Trade Commission going?" Today, after the publication of the proposed rules for the wool industry, we ask that question again.

The only possible answer is almost an incredible one: that the F.T.C. is deliberately following a policy which will deceive the consumer, penalize the industry, and discredit all future attempts of the commission to be of service in this respect.

It is the opinion of those in a position to know—and an opinion never controverted satisfactorily—that distinction between virgin wool and re-worked wool is not feasible. More than that, an attempt to make such a distinction by labeling will hurt the consumer, in that there are inferior grades of virgin wool, and very superior grades of re-worked wool. And yet the F.T.C. comes out with pages of rules based on this impossibility—and compounding the error by multiplying the number of different terms which may be used.

Last March we said that the attitude of the Trade Practice Division of the F.T.C. had undergone a marked change: a swing from a co-operative to a dictatorial position. The swing is now complete. The representations of the industry have been completely ignored, and a set of stupid, silly rules drawn up.

In that direction, lies oblivion for the commission. But before that happens the interests of all groups may be injured. Consequently we hope the wool industry will fight this latest proposal to the last ditch.

NEWS OF THE MONTH

Textile Committee Meets Dec. 14

On Dec. 14 the full Textile Industry Committee of the Wage-Hour Administration will begin a four-day meeting at the Labor Department to hear the reports of three subcommittees.

In addition the main committee will hear reports from representative trade associations and from labor organizations on the possible effect of different wage minima, such as 30, 35, and 40¢ if applied to various branches of the industry. This information will be in response to Mr. Nelson's letter of Oct. 20 to 57 trade associations in 15 branches of the industry.

At the hearing on textile learners' exemptions Nov. 28 Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, suggested three provisions for learners in the cotton rayon and silk industries. Hearing was before Merle D. Vincent, Assistant Administrator of the Wage and Hour Division, Department of Labor.

The recommendations of the institute were: (1.) A limitation of the period employees can be carried as learners on a given operation to nine weeks; (2.) A limitation of the number of learners employed at one time in a plant to 4% of the total employees; (3.) Compensation for learners to be at least 70% of the going minimum wage.

Other witnesses in general supported these suggestions. The witnesses included—George M. Wright, president, Republic Cotton Mills, Great Falls, S. C.; G. A. Urlaub, Throwsters Research Institute; Earl Stall, textile engineer, Greenville, S. C.; John B. Clark, Cotton Thread Institute; Frank Ix, president, Frank Ix & Sons, Charlottesville, Va.; George R. Myers, Samuel J. Aronsohn, Inc., Paterson, N. J.; W. N. Banks, president, Grantville (Ga.) Mills; Irene Blunt, National Federation of Textiles; Russell T. Fisher, president, National Association of Cotton Manufacturers.

Labor representatives argued against "blanket" exemptions and on Nov. 30, both sides went into a round-table discussion to reach a compromise program.

Murchison Urges Cotton Research

The solution of the problem of cotton agriculture is vital, not only in the interest of the cotton textile industry, but for the preservation of a major national asset in the interest of the country as a whole, stated Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, at Duke University, Nov. 18. In a scholarly address, Dr. Murchison traced the development of the southern cotton textile industry and the changes which have taken place in recent years.

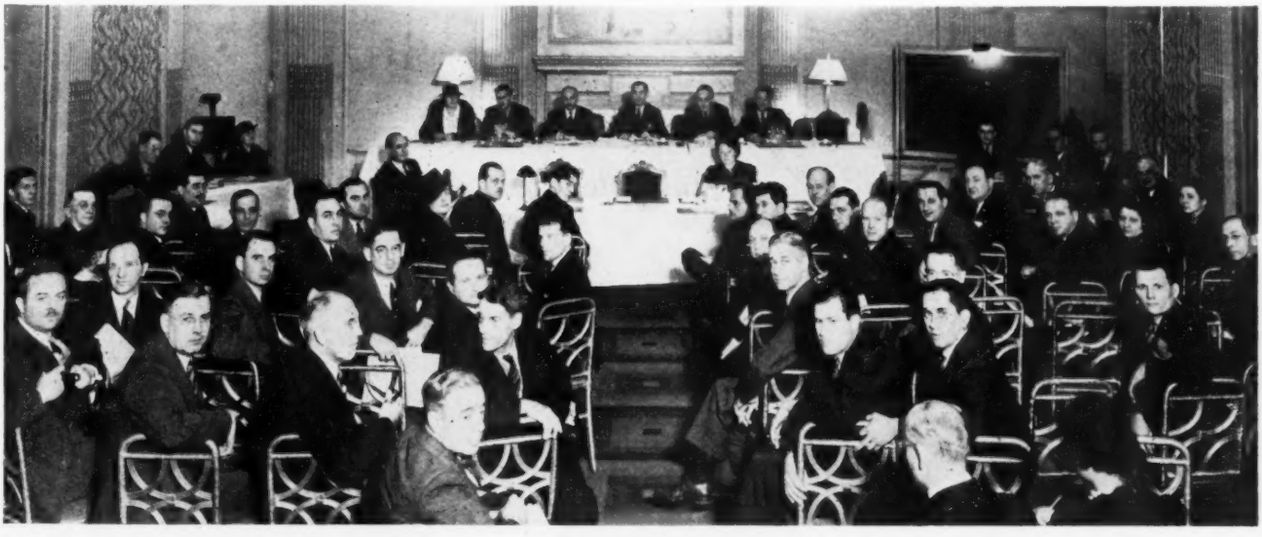
The threat to cotton as a textile material, resulting from the inroads of such competitors as rayon, paper, etc., is not of tremendous concern to the textile industry as such, since that could continue undiminished in structure, although not to so great an extent as a cotton-textile industry. However the whole economy of the South is involved—and this supplies the motive which will justify our striving to the utmost to solve the problem which confronts us, he pointed out. The recently organized Federal regional laboratories for experimentation on farm products under the general direction of the Department of Agriculture should be operating within another year, Dr. Murchison said, and will no doubt prove to be valuable for cotton research purposes.

Square Deal Urged at N.E. Conference

Improving business through better relations between industry, labor and government was the keynote of the 14th New England Conference at Boston Nov. 17-18, with nearly 900 registrants looking confidently toward 1939.

Avoidance of restrictions on industry and development of mutual interests between employer and employee were advocated by Geo. C. Smith of the Missouri, Kansas & Texas Railroad.

A. L. Fletcher, assistant administrator, Labor Standards Act, reviewed the purposes of this legislation and praised employer and employee organizations for their co-operation with the Government. R. C. Patterson, Jr., Assistant Secretary of Commerce, advocated broader analysis of the rela-



MERLE D. VINCENT, assistant administrator of the Wage and Hour Division, Dept. of Labor (at center of table above), presiding at the hearing on textile learners exemptions, Washington, D. C., Nov. 28.

tion of business and government as a foundation of private enterprise.

Charles F. Weed, vice-president First National Bank, Boston, was elected president of the New England Council for the ensuing year.

Cotton Council Formed

The National Cotton Council of America was formally organized in Memphis Nov. 21-22, representing a concerted drive on the part of the five primary cotton interest groups to increase the consumption of American cotton. These groups include cotton growers, ginners, warehousemen, merchants and cotton-seed crushers. The council prepared immediately to raise a fund of $250,000 to set in motion machinery for execution of a preliminary education program.

Oscar Johnston, head of the world's largest cotton plantation, the Delta and Pine Land Co., Scott, Miss., was elected chairman of the council, by acclamation. Rhea Blake, executive manager of the Delta council, Stoneville, Miss., is secretary. The next meeting will be held in Dallas, Tex., about the middle of January.

CIO-UTWA Contract Invalid

The contract between the United Textile Workers of America and the CIO, under which an estimated 350,000 textile workers were enrolled, was declared invalid Nov. 30 in the Superior Court at Providence, R. I. The basis for the invalidation was the Court's claim that the local unions were given no opportunity to express their wishes in the matter. The ruling was handed down in an injunction suit brought by CIO against Joseph Sylvia, ousted TWOC organizer, and the Providence-Woonasquatucket Woolen and Worsted District Council.

The Court also questioned the authority of Francis Gorman, president of the UTWA, to execute the contract. An official of TWOC announced the decision would be appealed to the State's Supreme Court.

A. F. of L. Union Replaces CIO

Issuance of a Federal union charter to a textile workers union with 6,000 members in Providence, R. I., has been announced by William Green, president of the A. F. of L. The union comprises eight locals banded together in the Providence and Woonasquatucket Valley Wool and Worsted Workers District Council. It formerly was affiliated with the CIO.

Mr. Green stated that this step "is only the beginning of an intensive organizing drive being conducted in the textile industry in every part of the country by the National Council of Textile Unions, recently formed by the A. F. of L."

Coordinating Group Named

Following up the recommendation for closer coordination of association activities in the cotton, silk and rayon fields, made recently by Dr. C. T. Murchison, president of the Cotton-Textile Institute, the following committee has been appointed: For the Cotton-Textile Institute, Dr. Murchison, president, and J. H. Cheatham and R. C. Dick, vice-presidents. For National Rayon Weavers Association, Paul Whitin, chairman of the board, R. E. Henry, past-chairman, and Charles Whitney Dall, president. For National Federation of Textiles, G. H. Conze, president, M. K. Yorks, vice-president, and Irene L. Blunt, secretary. It is made clear that this committee does not have power to act but merely to explore and recommend.

FTC Startles Wool Industry

The Federal Trade Commission Nov. 26 issued a schedule of proposed trade practice rules for the wool industry. The Commission has set Dec. 14 as the date for oral hearing and presentation of briefs on the part of those with anything to say regarding the proposed rules. Men in the wool goods industry in New York were stunned by the complexity of the proposals as well as by the failure of F.T.C. to give any weight at all to the strong presentations made by wool manufacturers at the original hearing last March.

Mill men point out that despite their strong opposition to designating two kinds of wool—virgin and reworked, the Commission has gone one step further than was suggested at the hearing and has set up three different classes of wool—virgin, waste, and reworked, complicated by numerous synonyms authorized under each class.

"Not only are those proposals utterly impracticable," stated the National Association of Wool Manufacturers on Nov. 28, "but if promulgated will unquestionably discredit the Federal Trade Commission and particularly the Trade Practice Division, since they cannot be enforced and will promote rather than prevent fraud and misrepresentation. The Commission has ignored the evidence of some of the foremost testing laboratories in the country as to the impossibility of detecting the presence of reprocessed wool in fiber blends."

Textile Calendar

- ***Industry-wide Hosiery Conference, New York, Jan. 18 and 19, 1939.***
- ***Philadelphia Textile School Alumni Association, annual banquet, Philadelphia, March 3, 1939.***
- ***Southern Textile Exposition, thirteenth show, Textile Hall, Greenville, S. C., April 3 to 8, 1939.***
- ***Knitting Arts Exhibition, 35th annual show, Commercial Museum, Philadelphia, April 17 to 21, 1939.***

New Rayon Data

The *Textile Organon* is now presenting monthly deliveries of rayon yarn and stocks of yarn held by producers in *pounds*. Hitherto these figures have been given as index numbers. Rayon consumption in October is given as 24,500,000 lb., and in November 21,000,000 lb.

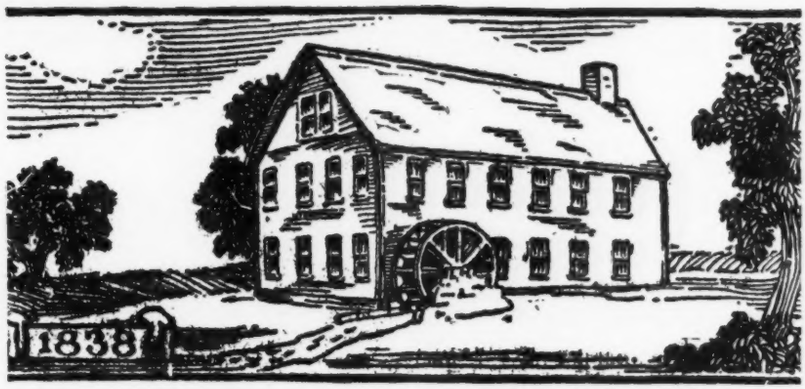
Less Wool Promotion

At a recent meeting of the Executive Committee of the Associated Wool Industries it was voted to make a further curtailment in the activities of the organization. The lack of support from the industry as a whole made such a decision inevitable.

Headquarters will be continued at 386 Fourth Avenue and the Associated Wool Industries will act as a clearing house for information on wool, especially for information of an educational nature. Aside from this work the principal function of the Associated Wool Industries will be to serve as a rallying point for specific promotions.

Finishers to Evolve Fastness Standards

Agitation by consumer groups and others for the establishment of Federal Trade Practice Rules governing labeling of dyed and printed fabrics has resulted in the appointment by the National Association of Finishers of Textile Fabrics of a technical committee to "explore and make recommendations for standards for fast colors and for different types of colors" and to recommend "standard



THE ORIGINAL CHENEY BROS. silk mill, as it looked when established in 1838. Commemorating the 100th anniversary of the firm's founding, the town of So. Manchester, Conn., where the Cheney mills are located, held a centennial banquet last month at which Ward Cheney, president, spoke. The early Cheneys were interested in silk culture around 1830 and eight years later Ralph, Ward, Charles and Frank Cheney together with E. H. Arnold started the Mount Nebo Silk Mills whose principal product was hand-twisted sewing silk. Frank invented a machine for making the thread in 1847. Between 1861 and 1865 Cheney Bros. began ribbon weaving and in 1866 added grosgrain broadsilks. Piece-dyeing was applied to their product in 1870. In 1880 the firm started plush and velvet manufacture and began silk printing. Jacquard woven goods were added in the late 80's. Ribbonzene was perfected in 1900. The men's neckwear department was started in 1912. With a long silk background the company has nevertheless kept up with the times by adapting its policies to the new synthetic fiber era.

methods of testing for fastness of color." In formulating its recommendations, the committee plans to obtain the cooperation of all groups concerned with color fastness and to take into consideration the interests of those groups. The dye manufacturers have already stated that they will be glad to cooperate in this study.

Says CIO Has Bogged Down

After 18 months of steady campaigning, the CIO's efforts to organize southern textile workers has bogged down, Harry Ashmore, staff writer for the *Greenville* (S.C.) *Piedmont*, stated recently in an article in that paper. Whether the slump in union activities, marked in the last three months, presages the collapse of the entire southern drive of the TWOC, or whether it is a temporary thing, is a matter of conjecture, he adds.

"The opinion of most observers today is that the TWOC has not done as well in the South as its sponsors hoped when they started two years ago," states Mr. Ashmore.

Pendleton Sees Rise in Wool Goods

Further price advances over spring opening levels were foreshadowed by Moses Pendleton, president of the American Woolen Co., New York, in a statement released early last month.

Mr. Pendleton says, "The infinitesimal advances of 5 to 7½¢ a yard which have been imposed (on cloth) do not begin to cover the disparity in the spread between wool and cloth prices which has taken place since the early spring orders were booked. An advance of approximately 20¢ a yard above the spring opening prices is justified by today's situation: it is necessary."

No Need For Worry!

Hosiery manufacturers who have worried unduly as to the immediate implications of the new synthetic yarns, are reassured in a statement made by the National Association of Hosiery Manufacturers. The Association emphasizes that "whatever place the new yarns may occupy in hosiery-making, they will have to attain that position over a period of time; there will be no overnight transition."

"Buy American" Say Wool Overseers

Severe criticism of the recently negotiated reciprocal trade agreement with Great Britain was voiced at the annual meeting of the National Association of Woolen and Worsted Overseers at Boston Nov. 19, with addresses by Congresswoman Edith Nourse Rogers of Lowell and F. L. Babcock, editor of *Fiber and Fabric*. The speakers vigorously urged the purchase of American-made goods as the only way to meet foreign competition and prevent disaster to the industry in this country in the face of the competition of a wage of 25c per day in Japan and $1.50 in England.

New officers of the association are: Bernard O'Reilly, Lowell, president; George W. Swallow, Utica, N. Y., and Frederick H. Graichen, Plymouth, Mass., vice-presidents; Clarence L. Cutler, Methuen, Mass., treasurer; James J. Burns, Holyoke, Mass., secretary; Leslie Gill, Cranston, R. I. secretary of beneficial department.

Carded Yarn Group Elects Ernest Rees

Ernest Rees, president and manager of the Elk Cotton Mills, Fayetteville, Tenn., was elected chairman of the Carded Yarn Group at its annual meeting in Charlotte, N. C., last month. He succeeds W. N. Banks, of Grantville, Ga. Owen Fitzsimons, secretary of the group, reported the appointment of Don P. Johnston, general manager, Royal Cotton Mill Co., Wake Forest, N. C., and J. A. Moore, treasurer of Edenton (N. C.) Cotton Mills, as members of a committee to consider proposed changes in the Carded Yarn Rules of 1938.

Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, was the principal speaker at the meeting. He paid tribute to the Carded Yarn Group for progress made in the last six months in the improvement of its inventory situation.

Highest Court Voids Kaufman Patent

Efforts to sustain the validity of the ringless hosiery patents, held by Julius Kayser & Co. and other firms, were blocked last month when the U. S. Supreme Court denied their request for a review of the adverse Circuit Court decision in their case against Rosedale Knitting Co. The Circuit Court had held that the Charles Kaufman hosiery patent owned by Kayser and others, was not valid. On Nov. 28 the Circuit Court of Appeals filed its mandate with the U. S. District Court, thus terminating court action in the matter. Decision on Rosedale's counter-suit alleging damages has not been handed down by the trial court.

Viscose Corp. Has Two New Yarns

Two new rayon yarns were announced last month by the American Viscose Corp. They are: (a) an abraded-filament acetate process yarn, now available in 200, 300, and 400 denier sizes; the yarn is said to have unusually high covering power and to produce an exceptionally satisfactory worsted effect; and (b) a new viscose process yarn for hosiery which is expected to be commercially available shortly; this is a sheer yarn, size equivalent to a 3-thread, and is said to have greater elasticity and strength than any viscose yarn now on the

market; it will be so priced as to permit a line of hosiery selling in the moderate-price field.

Scull Heads Salesmen

Frank R. Scull, of Tubize Chatillon Corp., was elected president of the Textile Salesmen's Association, at the annual meeting and dinner held in New York Dec. 6. Other officers chosen were: first vice-president—Laurence C. Cremins, Wahnetah Silk Corp.; second vice-president—Albert E. Crabtree, Mallinson Fabrics Corp.; secretary—H. W. Smith; treasurer—W. C. Leopoldt, Payet, Volta, Miller.

Cottons Sluggish

The cotton gray goods market during November developed sluggish tendencies in some lines, notably print cloths. Prices eased slightly, but there was hope that business would improve after the holiday and inventory period at the end of the year. Wide sheetings, industrials, and domestics continued strong, especially the sheetings. Price of 64x60, 38½-in., 5.35 print cloth at the end of the month was 4⅜¢.

Wool Goods Gain

Wool goods improved in tone and actual business in November, despite threat of the U. K. agreement. Both men's and women's wear shared the improvement. Prices were firm. Spring women's wear were opened in several offices with plaids, coverts and flannels featured.

Unfilled orders for men's wear are now estimated at 30,000,000 yd. (double the figure of a year ago) and for women's wear, 7,000,000 yd. (same as a year ago). Men's wear orders represent about 14 weeks production, women's wear about 7 weeks.

Wool tops ran through the first half of November at 85¢ for N. Y. spots, up 1¢ from October. After the U. K. treaty announcement they dropped 2½¢ and recovered to 83¢ at end of month.

Silk Active; Lower

Silk prices weakened 7 to 9¢ during November, despite a rise in deliveries. Hosiery mills bought actively when the month opened, and later weavers of underwear fabrics did likewise.

Rayon Sales Slide

Rayon yarn sales slid off a bit during the first half of November; the latter half of the month brought a pick-up, especially from lining firms, and the month as a whole promised to approximate 80% of October's volume.

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Knit Goods Steady

While somewhat behind expectation, November knit goods demand in all three branches was sufficient to hold prices steady and market tone was firm at the turn of the month.

Welcome Cold

Backward fall weather had hindered sale of silk and rayon fabrics but the end of November brought a cool snap which stimulated demand in most lines. One exception was velvets; the pile fabrics suffered a sharp drop during the month and did not rally quickly.

This and That

◆ A tribute to Capt. Ellison A. Smyth, on the occasion of his 91st birthday, was paid by Wm. P. Jacobs, secretary-treasurer of the Cotton Manufacturers Association of South Carolina, under the caption "The Captain's Birthday."

◆ Donald Tansill, vice-president of the Pepperell Mfg. Co., is the author of an extremely interesting article entitled "So You Are Going to Sell," published in a recent issue of the *Saturday Evening Post*.

◆ A committee of the Department Agriculture, named by Secretary Wallace to study developments in synthetic fibers, has reported that rayon is "very definitely" competitive with cotton. . . . With that cosmic question settled, the committee can now go on to even greater things.

◆ Spun-black acetates in cut staple and continuous-filament forms were announced last month by A. M. Tenney Associates, selling agents for Tennessee Eastman Corp. The new products sell at a 10¢ premium.

Sharp Up-Curve Ahead!

Dr. Edie and McGraw-Hill editors agree on outlook

BUSINESS is headed toward a substantial improvement in volume between the present time and the middle of next year, according to Dr. Lionel Edie. Beyond that time, he feels, "we are against a kind of stone wall and it would be mere crystal gazing to try to say what happens beyond that period." However his prediction about the outlook into the middle of 1939 is not uttered "in a wishy-washy spirit," he emphasizes, but in a spirit of very real conviction.

The following is an abstracted summary of his findings:

The all-pervasive influence governing business at this time is the fact that the Administration in Washington is trying to affect the life of the country profoundly and universally. This influence is based on a theory that, without the confidence of private capital, an uplift in business can be generated by the expenditure of vast sums of money through Government channels.

That theory can be measured in terms of simple arithmetic: For September the Treasury Dept. had a cash deficit of $50,000,000. Each month to come we will have a higher cash deficit, and somewhere between April and June of next year it will reach about $600,000,000 in a single month, and possibly even $700,000,000. And a cash deficit is the same as printing greenbacks. Consequently at the peak of cash deficits in the second quarter of next year we shall, in substance, be printing greenbacks at the rate of $600,000,000 per month. That will be the peak monthly rate, and on an annual basis that is equal to a cash deficit of $7,000,000,000 per annum, equivalent to five times the soldiers' bonus of 1936.

Some more arithmetic: The national income in the month of October was about 10% below a year ago. Within the very near future the national income will cross the year-ago line, and by spring of next year it will be running about 8% above the like months of the year previous. That is a very fundamental shift.

A third figure: After careful and conservative calculation, it can be stated that total construction contracts awarded in the first six months of 1939 will run from 30 to 40% above the *best* six months of the 1936-37 period.

Facing these three factors—pump-priming of the deficit, shift in national income, and sharp increase in construction volume—it is apparent that the volume of industrial production has to go up. By the spring of next year that volume as measured by the Federal Reserve Index of Production should be up to at least 100 as against 75 in June of this year and as against 115 during the better period of 1936-37. That is a very important increase.

Dr. Edie closed with this advice to his hearers: Do not allow your prejudices or your philosophies to blind you to the realities of what is directly ahead of us: sharp improvement in volume of business.

DR. LIONEL EDIE, consulting economist to the McGraw-Hill Publishing Co., spoke to the chief editors of that company recently, and then repeated his remarks at a convention in Hot Springs, W. Va. The point of view he expressed was so stimulating and important, that it is abstracted here.

Stimulated by Dr. Edie's address, each editor summarized a preview of 1939 for the industry or field served by his own publication. Certain of these statements are also briefed on this page.

Dr. Lionel Edie

Supplementary comments from McGraw-Hill editors follow:

Bus Transportation: All classes of motor carriers will gain in the amount of traffic handled. . . . Volume will continue from now on to go ahead until after the close of next year's vacation season.—CARL W. STOCKS, editor, *Bus Transportation.*

Coal Mining: The present upswing in coal demand should quicken capital expenditures and carry them forward at increasing rates as general business continues to improve.—SYDNEY A. HALE, editor, *Coal Age.*

Electric Utilities: Under any kind of favorable government, financial and business conditions, it is easily possible that 1939 utility spending may exceed that for any year since 1931.—S. B. WILLIAMS, editor, *Electrical World.*

Engineering Construction: This year's construction volume will exceed last by about 10%. We expect that a further increase of about 20% will occur in 1939, made up 10% of residential construction and 10% of public works.—W. G. BOWMAN, managing editor, *Engineering News-Record.*

Metal Working: The metal working industry will get a substantial lift from Government spending. In fact it already has received a considerable amount of business from Washington.—BURNHAM FINNEY, editor, *American Machinist.*

Process Industries: We are certain that the chemical process industries will set new records in 1939.—S. D. KIRKPATRICK, editor, *Chemical & Metallurgical Engineering.*

Textile Industries: There is every prospect that the present improvement will continue for the rest of 1938 and the first half of 1939. At a conservative estimate, TEXTILE WORLD's index number of textile mill activity for those nine months (last quarter of 1938 and first half of 1939) should be at least 115 (on the basis of 1923-25 as 100). In fact there is a good chance that boom conditions will push the figure up to 125, the all-time record set by this industry in 1937. This is in contrast to the index of 87 which prevailed in the first half of this year.—DOUGLAS G. WOOLF, editor, TEXTILE WORLD.

Textile Tariffs Slashed

By trade agreement with Great Britain —Industry's spokesmen bitter

THE long-awaited reciprocal trade agreement with the United Kingdom was concluded last month, and at least certainty replaced uncertainty. A peculiar international situation prevailing at the time of signature created a much more favorable reception for this treaty than would otherwise have existed.

To the bulk of the textile industry, however, the news meant mostly one thing: Textiles came in for the major tariff reductions on imports into this country from Great Britain. Details of these reductions are found in the adjoining table.

Cotton Industry "Penalized"

Most comments by textile men were critical and pessimistic. The Administration "has traded away employment in textiles" by granting tariff concessions on cotton yarns and cloth to the United Kingdom, stated Russell T. Fisher, president of the National Association of Cotton Manufacturers. "The largest concessions are granted on the finer yarns and fabrics that go to make the better end of cotton textiles, and in this section of the industry the greatest effect will be felt.

"The cotton textile industry in the United States is to be penalized for its high standards. The average wage in the English cotton mill is below 20c.—less than our minimum wage of 25c. an hour and approximately half the average wage in this country. Not only are their wages just a fraction of wages in this country, but the English cotton mills operate 48 hours compared with 40 in this country.

Situation in Fine Yarns

Since the agreement involves reduction in duties on cotton yarns finer than 60s, comment by the Southern Combed Yarn Spinners Association is of particular interest. Mildred G. Barnwell, executive secretary of the association, states that combed yarn production by its members in 1937 on 60s and over totaled 15,812,994 lb., with an estimated market value of $11,426,079. Since imports of those finer yarns from the United Kingdom in 1937 were $1,147,000, it seems evident that those imports in dollar value amounted to about 10% of southern combed yarn production, although imports amounted to less than 1% of the total United States production of yarn for sale. Out of the total 1,532,000 spindles in the Southern Combed Yarn Spinners Association, 1,450,180 are capable of producing 60s and over but only 381,347 spindles are on yarn of those numbers today, and produced the poundage given above for 1937.

"Severe Blow" to Wool Industry

A severe blow has been delivered to the wool industry through reductions in the ad valorem rates which in some cases have been cut in excess of 40%, in the opinion of Arthur Besse, president of the National Association of Wool Manufacturers.

"The reduced rates have not been set with recognition of the rates needed to provide adequate protection against countries with wage rates which are in every case one-third or less of those paid in this country. The new rates in the main represent merely the best our negotiators could do in bargaining with the British.

"It is regrettable that the State Department felt impelled to justify the cuts they have made by depreciating the quality of goods made in this country. The State Department release, in speaking of the cuts in the duty on wool products, states that 'the largest reductions in duty are limited to articles of high quality which are not produced in the United States or which do not compete with the bulk of the domestic output of wool manufacturers.' The State Department must know that this is not true. . . . The State Department should be thoroughly ashamed of having contributed to the fiction that American woolens are inferior to those produced in England."

The concessions granted by the United States "will most seriously curtail and may even destroy" the fine quality branch of the American wool manufacturing industry, Sylvan I. Stroock, president of S. Stroock & Co., Inc., predicted in a protest mailed to Secretary Hull.

Hosiery Concessions Analyzed

"It is hoped that the concessions granted by the United Kingdom on silk hosiery will result in a worth while expansion of the export market of the American manufacturer," comments the National Association of Hosiery Manufacturers. "Some doubt has been expressed locally that the concessions granted will be sufficient to open up any substantial increase in the exports of silk stockings."

"From the viewpoint of the American hosiery industry as a whole, any increase in exports will have to be quite substantial to offset the balance of trade in favor of the United Kingdom resulting from heavy imports of wool hosiery, the duties on which have been reduced in the new trade agreement."

CONCESSIONS ON IMPORTS INTO THE UNITED STATES

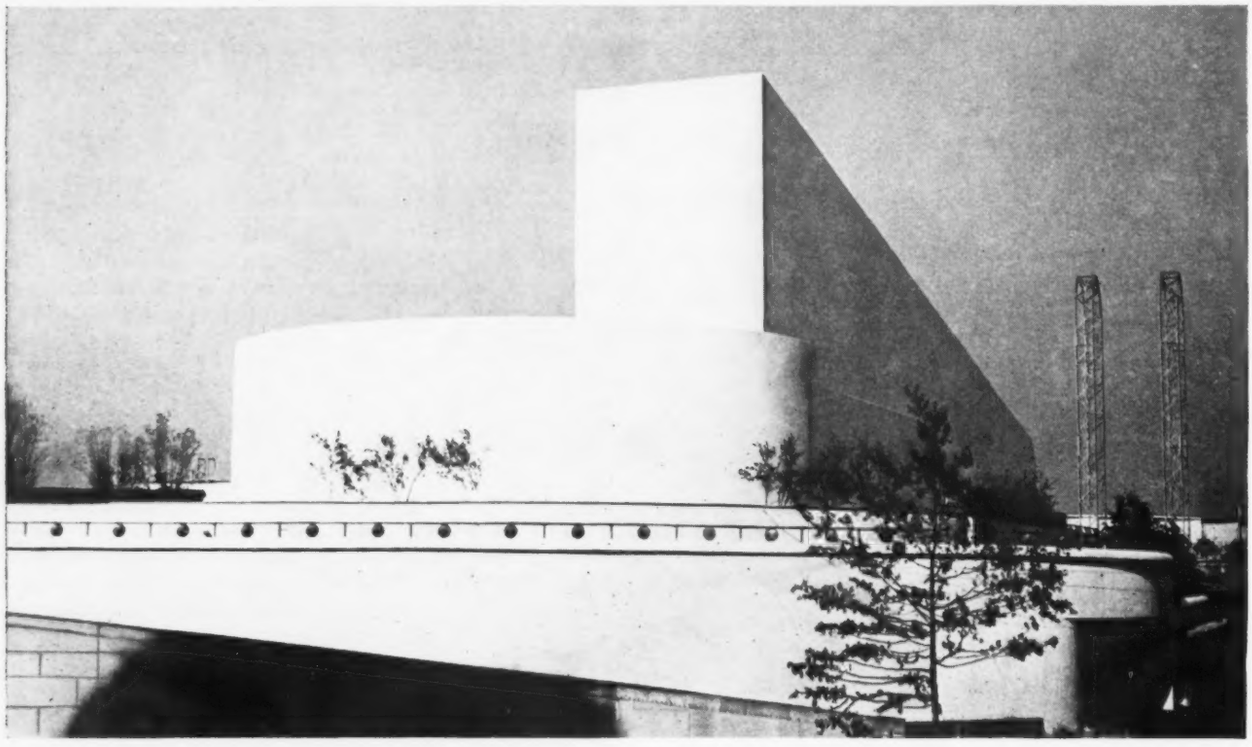
Paragraph number, act of 1930, and description of commodity	Rate of duty	
	Before agreement	Under agreement
901 (a) Cotton yarn, including warps, in any form, not bleached, dyed, colored, combed, or plied:		
Nos. 61–80, inclusive	23%+0.3% for each number exceeding 60.	23%+0.1% for each number exceeding 60.
Exceeding 80	29.3% to 32%	25%
901 (b) Cotton yarn, including warps, in any form bleached, dyed, colored, combed, or plied:		
Nos. 61–80, inclusive	28%+0.3% for each number exceeding 60.	28%+0.1% for each number exceeding 60.
Exceeding No. 80	34.3% to 37%	30%

Paragraph number, act of 1930, and description of commodity	Rate of duty	
	Before agreement	Under agreement
904 (a) Cotton cloth, not bleached, printed, dyed or colored: Not exceeding 102s—		
Valued at not more than 70¢ per lb	10%+0.35% per yarn No. but not less than 0.55¢ per yarn No. per lb. on cloth not exceeding 90s; 41½% but not less than 0.55¢ per yarn No. per lb. on cloth exceeding 90s.	10%+0.35% per yarn No. but not less than 0.4¢ per yarn No. per lb.
Valued at more than 70¢ per lb		7½+0.25% per yarn No. but not less than 0.4¢ per yarn No. per lb.
Exceeding 102s		33%, but not less than 0.4¢ per yarn No. per lb.

Paragraph number, act of 1930, and description of commodity	Rate of duty	
	Before agreement	Under agreement
904 (b) Cotton cloth, bleached (except cloth included in Swiss trade agreement):		
Not exceeding 60s and valued at more than 80¢ per lb.	13%+0.35% per yarn No. on Nos. 1-30 and 51-60; 18½%+0.5% per yarn No. on Nos. 31-50.	10%+0.25% per yarn No.
Exceeding 60s, not exceeding 90s, and valued at more than $1.20 per lb.	13%+0.35% per yarn No.	10%+0.25% per yarn No.
Exceeding 90s	44½%	36%
904 (c) Cotton cloth, printed, dyed, or colored (except cloth included in Swiss trade agreement):		
Not exceeding 60s and valued at more than 90¢ per lb.	16% + 0.35% per yarn No. on Nos. 1-30 and 51-60; 22½%+0.5% per yarn No. on Nos. 31-50.	12% + 0.25% per yarn No.
Exceeding 60s not exceeding 90s, and valued at more than $1.40 per lb.	16% + 0.35% per yarn No.	12% + 0.25% per yarn No.
Exceeding 90s	47½%	39%
904 (d) Cotton cloth woven with 8 or more harnesses, or with Jacquard lappet, or swivel attachments (except cloth included in Swiss trade agreement).	Rate on plain cloth +10%.	Rate on plain cloth+5%.
904 (d) Cotton cloth woven with 2 or more colors or kinds of filling (except cloth included in Swiss trade agreement).	Rate on plain cloth +5%.	Rate on plain cloth+5%.
906 Cloth, in chief value of cotton, containing wool.	60%	40%
907 Tracing cloth and window hollands	30%	20%
907 Oilcloths(except silk oilcloths and oilcloths for floors).	30%	15%
907 Filled or coated cotton cloths, n. s. p. f.	35%	20%
907 Waterproof cloth of cotton or other vegetable fiber, whether or nor in part of India rubber.	30%††	25%
909 Cotton corduroys, 52 in. or more in width and valued at 50¢ or more per sq. yd.	50%	30%
909 Plushes and chenilles 52 in. or more in width and valued at $1 or more per sq. yd.	50%	30%
909 Twill-back velveteens, cut or uncut, whether or not the pile covers the entire surface in chief value of cotton, and valued at 65¢ or more per sq. yd.	44%	37½%
909 Velveteen polishing cloths, wholly or in chief value of cotton, valued 60¢ or more per sq. yd.	62½%	31¼%
913 (a) Belts and belting for machinery, of cotton or other vegetable fiber:		
Containing India rubber and valued at 40¢ or more per lb.	30%	20%
Not containing India rubber	30%	20%
920 Nottingham lace curtain machine products of cotton or other vegetable fiber.	60%	50%
923 Articles and manufactures of cotton, n. s. p. f.:		
Terry-woven towels, valued at 45¢ or more each; Printers' rubberized blanketing; Molded cotton-and-rubber packing; Fishing nets, valued at 50¢ or more per lb; Ladder tapes; Badminton nets; Cotton-and-wool mixed yarn.	40%	30%
1008 Woven fabrics, wholly of jute, n. s. p. f.:		
Unprocessed	1¢ lb.	1¢ per lb.
Processed	1¢ lb.+10%	1¢ per lb.+10%
1009 (a) Woven fabrics of flax, exceeding 30, and not exceeding 100 threads in warp and filling to the square inch, weighing from 4 to 12 ounces inclusive, per sq. yd., exceeding 12, and not exceeding 36 inches in width.	55%	50%
1013 Table damask of flax, and manufactures thereof (except napkins):		
Not exceeding 130 threads per sq. in	30%††	30%
Exceeding 130 threads per sq. in	45%	25%
1014 Towels of flax:		
Not exceeding 120 threads per sq. in	55%	50%
Exceeding 120 threads per sq. in	40%	20%
1019 Jute bagging for covering cotton, not over 16 threads per sq. in., weighing over 32 oz. per sq. yd.	3/10¢ lb.	3/10¢ lb.
1105 (a) & (b) Wool and hair wastes:		
Top, slubbing, roving, and ring waste	37¢ lb.	34¢ lb.
Garnetted waste	26¢ lb.	18¢ lb.
Wool noils: Carbonized	30¢ lb.	21¢ lb.
Not carbonized	23¢ lb.	16¢ lb.
Thread or yarn waste	25¢ lb.	15¢ lb.
Card or burr waste: Carbonized	23¢ lb.	18¢ lb.
Not carbonized	16¢ lb.	14¢ lb.
Wool wastes, n. s. p. f.	24¢ lb.	14¢ lb.
Shoddy and wool extract	24¢ lb.	14¢ lb.
Mungo	10¢ lb.	9¢ lb.
Wool rags	18¢ lb.	9¢ lb.
Flocks	8¢ lb.	5¢ lb.
1106 Wool and hair advanced not further than roving, including tops.	37¢ lb. + 20%	37¢ lb. + 12½%
1107 Yarn, wholly or in chief value of wool, other than Angora rabbit hair:		
Valued at not more than 60¢ per lb	40¢ lb. + 35%	30¢ lb. + 30%
Valued at more than 60¢ but not more than $1 per lb.	40¢ lb. + 35%	36¢ lb. + 30%
Valued at more than $1 but not more than $1.50 per lb.	40¢ lb. + 45%	40¢ lb. + 30%
Valued at more than $1.50 per lb	40¢ lb. + 50%	40¢ lb. + 30%

†† Reduced rate under previous agreement with another country.

Paragraph number, act of 1930, and description of commodity	Rate of duty	
	Before agreement	Under agreement
1108 Woven fabrics, weighing not more than 4 oz. per sq. yd., wholly or in chief value of wool:		
Without warp of cotton or other vegetable fiber:		
Valued at not more than $1.25 lb	50¢ lb.+50%	50¢ lb.+37½%
Valued at more than $1.25 but not more than $2 per lb.	50¢ lb.+55%	50¢ lb.+37½%
Valued at more than $2 per lb.	50¢ lb.+60%	50¢ lb.+37½%
1108 Woven fabrics, weighing not more than 4 oz. per sq. yd., wholly or in chief value of wool:		
With warp of cotton or vegetable fiber—		
Valued at not more than $1 per lb	40¢ lb.+50%	40¢ lb.+37½%
Valued at more than $1 but not more than $1.50 per lb	40¢ lb.+55%	40¢ lb.+37½%
Valued at more than $1.50 per lb	40¢ lb.+60%	40¢ lb.+37½%
1109 (a) Woven fabrics weighing more than 4 oz. per sq. yd., wholly or in chief value of wool (except woven green billiard cloths, wholly of wool, weighing more than 11 but not more than 15 oz. per sq yd.):		
Valued at not more than 80¢ per lb	50¢ lb.+50%	40¢ lb.+45%
Valued at more than 80¢ lb. but nor more than $1.25 per lb.	50 ¢lb.+50%	50¢ lb.+40%
Valued at more than $1.25 but not more than $2 per lb.	50¢ lb.+55%	50¢ lb.+40%
Valued at more than $2 per lb.	50¢ lb.+60%	50¢ lb.+35%
1109 (b) Woven wool felts for machines:		
Valued at not more than $1.25 per lb	50¢ lb.+25%††	50¢ lb.+25%
Valued at more than $1.25 but not more than $2 per lb.	50¢ lb.+27½%††	50¢ lb.+27½%
Valued at more than $2 per lb.	50¢ lb.+30%††	50¢ lb.+30%
1110 Plushes, velvets, and other pile fabrics of wool and other hair:		
Pile wholly cut or wholly uncut	44¢ lb.+50%	44¢ lb.+40%
Pile partly cut	44¢ lb.+55%	44¢ lb.+40%
1110 Manufactures of plushes, velvets, and other pile fabrics of wool and other hair:		
Pile wholly cut or wholly uncut	44¢ lb.+50%	44¢ lb.+40%
Pile partly cut	44¢ lb.+55%	44¢ lb.+40%
1111 Wool blankets, etc., not over 3 yds. in length:		
Valued at not more than $1 per lb	30¢ lb.+36%	30¢ lb.+36%
Valued at more than $1 but not more than $1.50 per lb.	33¢ lb.+37½%	33¢ lb.+36%
Valued at more than $1.50 per lb	40¢ lb.+40%	40¢ lb.+36%
1112 Felts of wool, not woven:		
Valued at not more than $1.50 per lb	30¢ lb.+35%	30¢ lb.+30%
Valued at more than $1.50 per lb	40¢ lb.+40%	40¢ lb.+35%
1113 Fabrics with fast edges not over 12 inches in width and articles made therefrom (including tubing, garters, etc.), wholly or in chief value of wool.	50¢ lb.+50%	50¢ lb.+40%
1114 (b) Wool hosiery, not embroidered:		
Valued at more than $1.75 and not more than $3 per doz. prs.	50¢ lb.+50%	50¢ lb.+35%
Valued at more than $3 per doz. prs.	50¢ lb.+50%	50¢ lb.+25%
1114 (b) Gloves and mittens of wool, knit or crocheted (not embroidered):		
Valued at more than $3.50 per doz. prs.	50¢ lb.+50%	50¢ lb.+40%
1114 (c) Knit underwear of wool:		
Valued at not more than $1.75 per lb	40¢ lb.+30%	40¢ lb.+30%
Valued at more than $1.75 per lb	50¢ lb.+30%††	50¢ lb.+30%
1114 (d) Infants' wool knit outerwear (other than headwear), n.s. p. f., valued over $2 lb.:		
Jersey	50¢ lb.+25%	50¢ lb.+25%
Other than jersey	50¢ lb.+75%	50¢ lb.+50%
1114 (d) Wool knit outerwear (other than headwear and infants' outerwear), n. s. p. f.:		
Valued at more than $2, but not more than $5 per lb.	50¢ lb.+50%	50¢ lb.+40%
Valued at more than $5 per lb.	50¢ lb.+50%	50¢ lb.+30%
1116 (b) Chenille axminster carpets and rugs	40%††	40%
1116 (b) Rugs of oriental weave made on a power-driven loom.	60%	40%
1117 (a) Machine-made wool carpets, rugs, mats, etc.: Axminister, n. s. p. f.; Wilton; velvet and tapestry; Brussels; and carpets and rugs of like character or description:		
Value at more than 40¢ per sq. ft	60%	40%
1117 (c) Floor coverings of mohair:		
Valued at not more than 40¢ per sq. ft	30%	30%
Valued at more than 40¢ per sq. ft	60%	40%
1119 Tapestries and upholstery goods (except pile fabrics) of wool and other hair.	Same rates as in 1108 and 1109 (a).	Same rates as in 1108 and 1109 (a)
1120 Manufactures of wool, n. s. p. f.:		
Cloth samples measuring not more than 104 sq. inches.	50%	25%
1529 (a) Nets and nettings made on the bobbinet machine, wholly or in chief value of cotton, not embroidered, having 225 holes or more per square inch.	90%	45%
1529 (a) Nets and nettings made on the bobbinet machine, wholly or in chief value of silk, not embroidered.	65%††	60%
1529 (a) Nets and nettings made on the bobbinet machine, wholly or in chief value of rayon or other synthetic textile, not embroidered.	65%††	65%
1529 (a) Hose and half-hose of wool, embroidered, etc.:		
With clocking—		
Valued not more than $3.50 per doz. prs.	75%	65%
Valued more than $3.50 per dos. prs.	75%	50%
Other than with clocking—		
Valued not more than $3.50 per doz. prs.	90%	65%
Valued more than $3.50 per doz. prs.	90%	50%



Latest view of the building at New York World's Fair which will house textile exhibits. It will be called "The Hall of Fashion—Apparel and Accessories Building."

Textiles at World's Fair

Hall of Fashion will house fabric displays, integrated with garments

THE form of textile participation in the New York World's Fair 1939 has at last been determined. What was formerly known as the Textile Building is now "The Hall of Fashion — Apparel and Accessories Building." In it, however, will be fabric displays by textile mills, integrated with displays of garments and accessories.

The psychological loss which the industry suffers through having no building carrying its name is more than offset by the advantages of this integrated set-up. As a matter of fact, it is doubtful if the project could have been sold in any other way. The obstacle to textile participation in a fair of this sort is that the great majority of textile manufacturers have no way of carrying their names to the consumer. Consequently the thought of purely fabric displays in a consumer show is a nice idea but not an easy one to sell. Integration with their direct customers—the garment and accessory manufacturers—however is something else again.

Therefore the Hall of Fashion combines under one roof the original ideas developed for the Textile Building, and those of the Apparel and Accessories Associates, Inc. The primary purpose of the building is to provide an opportunity to demonstrate to the American woman the outstanding contributions made by the textile and allied industries to American life, and from that to encourage a greater acceptance of American fabrics and fashions.

Plan for the Exhibit

The plan for exhibit calls for displays of fabrics entering into the life of a woman; garments made from those fabrics; and accessories which are a necessary adjunct to the garment. Specifically, these displays include cotton, wool, rayon and silk fabrics; coats and suits; foundation garments and underwear; dresses, furs, shoes, stockings, etc. Displays by specialty shops and other high-grade retailers will be housed in show windows surrounding the theater-restaurant, which is the focal point of the building.

This theater-restaurant will be designed after the manner of a night club. Patrons will be seated at small tables arranged in a series of terraces to insure an unobstructed view of the stage. From this stage will be given fashion shows covering all fashion and fiber ranges, and in addition trade previews where new fashions will be shown for the first time, and promoted through retail stores across the country. It is felt that the style shows will give dramatic appeal to the exhibits, from the standpoint of the ultimate consumer; also that the trade shows designed for store buyers will serve to bring forcibly to retail attention the products which are featured.

The available space in the building for exhibits is limited to 28,000 sq. ft. It has been suggested that participating mills may find it to their advantage to show in their space the products of their customers, thereby strengthening their own position through helping those customers.

In addition to the displays in the Hall of Fashion, textiles will be shown in two other buildings: "Man, His Clothes, His Sports" and "Household Furnishings Building."

The fair opens April 30, 1939.

Facts About the Wage-Hour Law

How to comply—A summary of information now available

From TEXTILE WORLD'S Washington Office

PROBABLY no one subject has aroused more interest in the textile industry, or created more demand for information, than the wage-hour act now in operation. Unfortunately, for quite a while after the passage of the act it was impossible to be anything but general in answering questions. Gradually, however, there is being built up a factual background.

Consequently, the editors of TEXTILE WORLD present herewith a summary of such facts as are now available. These include a brief statement as to how an individual manufacturer can best handle himself to be sure that he complies with the law; also the highlights of the act itself, and a digest of the rules, regulations, exemptions, and opinions.

This material was furnished by the Washington office of TEXTILE WORLD. It will be supplemented each month, in these columns, by the new material that comes out of Washington. From time to time, also, we hope to check up with a compilation of information, such as this one when circumstances warrant.—*Editor.*

HOW TO COMPLY WITH THE LAW

CONGRESS has asked the employers of the United States to move as rapidly as possible, without substantially curtailing employment, toward a universal 40-hour week and a minimum 40-c. hour. It has seen fit to set up a Labor Standards authority to aid the courts in enforcing this law upon those who do not voluntarily comply. Apparently most employers wish to comply, for thus far a mere handfull of complaints have come to Administrator Andrews; no case has been brought to court; and none is threatened.

The writer sat down with officials of the Wage-Hour Division and asked them: What should employers do to comply with the law with least possible trouble? This is what they said:

First, get all the regulations, rules, exemption, orders, and opinions issued by the Washington office, and read them carefully. Any bona fide employer can get a complete set of these documents by writing for them. If any part is not clear, ask an attorney, a local labor official, or an official of the Division to explain it. Read the law itself carefully. It makes the purpose of Congress quite clear.

Second, seek to determine, in reading Division documents and the law, whether your business is covered or not. In general, if you're in interstate commerce and you are not specifically exempt in the text of the Act, probably you are covered. It is possible that some of your employees are covered, while some are not. In most cases, except where the administrator is specifically authorized to issue certificates of exemption, you will have to determine answers to these questions for yourself. The administrator is not authorized to do so; he can only give general opinions. Only test-cases in court, and then only if they reach the Supreme Court, can settle them finally. It may be 1940, or even later, before any Supreme Court decisions are made on this law. Meanwhile, the best policy is to comply in the cases of employees about whom you are in doubt.

Third, study the law and the rulings and exemptions and interpretations with a view to the most economical compliance, but not with an eye to evasion. Officials of the division, and most labor observers in Washington, feel that the odds are all against tricky efforts to evade, and that such a policy will cost the evader in the long run. The unions are mobilizing their facilities against such attempts; employees will have complete information as to their rights under the law and they can bring suit; competitors will be keen to spy any labor practice that cuts costs to their disadvantage, and they too can lodge complaints; and, last, of course the administrator and his staff, backed by Congress and a big percentage of the public are bending all their efforts toward compliance. On the other hand, the administrator has publicly expressed his patience with honest mistakes. Employers who sincerely try to comply can expect every advantage.

Fourth, study carefully the administrator's regulations on records to be kept by employers. These records can be kept in any intelligible form, but the regulation makes useful suggestions. The records are to be kept on file, not sent to Washington, and are to be available to wage-hour inspectors on call.

Fifth, when in need of advice, get in touch with a representative of your State labor authority, who may be able to help. If not he probably can refer you to the nearest field representative of the Federal Wage-Hour Division. If your problem is fairly important, write to the nearest area headquarters of the Wage-Hour Division.

Area No. 1, Ernest R. Strempel, Wage-Hour Division, U. S. Department of Labor, Boston, Mass.
Area No. 2, Earle Dahlbert, Wage-Hour Division, U. S. Department of Labor, Washington, D. C.
Area No. 3, O. J. Libert, Wage-Hour Division, U. S. Department of Labor, Chicago, Ill.
Area No. 4, Wesley O. Ash, Wage-Hour Division, U. S. Department of Labor, San Francisco, Cal.

In a matter of first importance, write to Administrator Elmer Andrews, Labor Standards Division, Labor Department, Washington. His office is not required by law to answer questions. His lawyers are for his own staff, not for the public. They are trying, however, to keep up with the demand for advice. At present they are 6,000 letters behind. You will have to wait a-while, but you will get an answer.

SUMMARY OF THE LAW

HERE is a condensed and simplified picture of the wage-hour law which should be easy to fix in mind for memory reference. Of course, this is not intended for down-to-cases legal use. Officially the wage-hour law is called Fair Labor Standards Act of 1938. The public printer and the document clerks up at the Capitol call it Public No. 718. The act itself is only 11 pages long, and is written in common English. Many who start

to plow through it because they must, find it interesting reading.

Finding and Declaration of Policy, Sec. 2—Congress finds that the existence in industry of labor conditions detrimental to maintenance of minimum standard of living, make bad labor relations, hamper the free flow of commerce, cause unfair competition, interfere with orderly marketing. Congress therefore proposes to correct this condition as rapidly as possible without substantially curtailing employment.

Definitions, Sec. 3—The Act explains 13 of the key words and terms used in its provisions.

Administrator, Sec 4—Congress sets up an authority, called the Wage-Hour Division in the Department of Labor under the direction of an administrator. The administrator is authorized to appoint employees and attorneys to represent him in litigation, to utilize regional and local agencies without pay. His main office shall be the District of Columbia. He shall report to Congress and may recommend further legislation once a year.

Industry Committees, Sec. 5—The administrator appoints industrial committees for industries in interstate commerce. The committees shall consist of representatives from labor, employers and the public. They function according to regulations made by the administrator, who can add to whatever information they may obtain.

Minimum Wages, Sec. 6—Every employer "in commerce," except those exempted, must pay not less than 25¢ per hour the first year of the Act, beginning Oct. 24, 1938; 30¢ the next six years, and after seven years, 40¢. But at any time after Oct. 24, 1938, the administrator may, upon recommendation of an industrial committee, order that industry to pay up to 40¢.

Maximum Hours, Sec. 7—With specified exceptions and exemptions, all employers "in commerce" must work employees no more than 44 hours the first year of the act, 42 hours the second year, and 40 hours after Oct. 24, 1940. Exemption under certain union contracts, and in some agriculture work, are made in this section.

Wage Orders, Sec. 8—To carry out the policy of the act, the administrator may convene industrial committees from time to time and wage rates may be raised or lowered. Committees shall classify workers, and fix wages so as not to curtail employment or give competitive advantages, and this shall not be done solely on a regional basis. Competitive conditions, union wages, and voluntary going wages shall be considered. The committee then files its recommendation with the administrator who, after hearings, issues his order accordingly. Or, he may disapprove the report and call for another, or appoint a new committee. No wage order shall remain in effect and no wage order shall be issued after the expiration of seven years from Oct. 24, 1938.

Attendance of Witnesses, Sec 9—The administrator is empowered to subpoena witnesses and records for any investigation provided by the Act.

Court Review, Sec. 10—Any person aggrieved by an order of the administrator may appeal to a U. S. Circuit Court of Appeals for review. The court can consider only questions of law; findings of fact by the administrator are usually final. The court, however, will not hear a complaint which was not first brought before the administrator. The court may order additional evidence taken by the administrator, who could then change his order and there would be no court trial. If there is a trial, the court's decision is final except upon appeal to the U. S. Supreme Court. Commencement of proceedings before circuit court does not stay the administrator's order unless the court so orders.

Investigation, Inspection, and Records, Sec. 11—The administrator and/or his representatives are empowered to enter a company's premises and obtain any information they want from records and persons. The administrator, with consent of State labor authority, may utilize the State's agencies for administrative purposes and may compensate them. All employers subject to the act shall keep records of employees, wages, and hours, available for inspection by the administrator.

Child Labor Provisions, Sec. 12—It is unlawful to ship "in commerce" any goods produced under "oppressive" child labor. Oppressive child labor is described in full in the definitions. The chief of the Children's Bureau of the Labor Department determines and prosecutes violations.

Exemptions, Sec. 13—Wage and hour provisions do not apply to executives; professionals; local retailing; outside salesmen; retail or service in intrastate commerce; seamen; air carriers under the Railway Labor Act; employees in catching and processing fish; in agriculture; employees exempted by order of the administrator; small newspapers; street transit and local bus; employees within the "area of production" (as defined by administrator) handling and processing farm and dairy products. Hours provision does not apply to motor carrier employees under Part I of Interstate Commerce Act; child labor is not prohibited in agriculture, movies, and theatricals.

Learners, Apprentices, Handicapped Workers, Sec. 14—The administrator is authorized to issue certificates permitting employment of these classifications at less than 25¢ per hour, to prevent curtailment of employment.

Prohibited Acts, Sec. 15—Shipment in commerce of goods produced in violation of the law or of the administrator's orders. Discharge or discrimination against employees for filing complaint or testifying in proceedings. Failure to keep truthful records. Violation of wage or hour provisions, or administrator's regulations. Violation of child labor provisions.

Penalties, Sec. 16—Commission of a prohibited act carries a fine of not more than $10,000 or imprisonment for not more than six months or both. Only second offenders can be imprisoned. Violators of wage and hour provisions are liable to employees for unpaid wages, unpaid overtime, and an additional equal amount as liquidated damages, or "double damages."

Injunction Proceedings, Sec. 17—District courts have jurisdiction to restrain violations of section 15 (prohibited acts).

Relation to Other Laws, Sec. 18—No provision of this Act excuses noncompliance with any other Federal or State law or ordinance establishing higher wages or shorter hours than those established under this act, or non-compliance with any child labor laws setting higher standards. No employer shall be justified in reducing wages or increasing hours as a result of this act.

Separability of Provisions, Sec. 19—If any provision of this act is held invalid, the remaining provision shall not be affected.

SUMMARY OF RULES, REGULATIONS, EXEMPTIONS, AND OPINIONS

THE wage-hour law specifically empowers the administrator to promulgate certain rules and regulations, and to authorize exemptions in certain occupations. He has power to approve or disapprove the recommendations of industrial committees regarding minimum wages. Beyond those matters, the Administrator has no power to make any final ruling. Yet in the discharge of his duties, with the advice of his General Counsel, he issues from time to time interpretations of the law, designed to aid employers as much as possible in solving their compliance problems. These interpretations (legal opinions) in no way confer upon employers any immunity from private suits for unpaid minimum wages, unpaid overtime, and double damages.

Rules and Regulations for Industrial Committees were issued Sept. 22 by Mr. Andrews. The first, and thus far the only, industrial committee is the Textile Committee headed by Donald Nelson. This is the broad import of its rules: Two-thirds of the membership is a quorum; a majority makes decisions; stick close to the policy of the Act, that is, eliminate detrimental labor conditions as rapidly as possible; give due consideration to economic and competitive conditions and recommend the highest minimum wage (within the limit) which will not substantially curtail employment; file report with administrator as soon as possible after completing investigation.

Employment of Apprentices regulations (Part 521) was issued Oct. 12.

Mr. Andrews finds that in order to prevent curtailment of employment, it is necessary to permit employment of apprentices at minimum wage rates fixed in apprenticeship agreements at less than 25¢ per hour. Employer and apprentices are instructed to make joint application for a special certificate. Any person may petition for review of decision or amendment of the regulations.

Employment of Learners regulations (Part 522) were issued Oct. 12. Application for employment of learners at less than the minimum wage may be made when it is deemed necessary to prevent curtailment of employment. Preference is given to applications by groups rather than individuals, hearings are held, and decisions are given on the basis of group and industry welfare. Any person may petition for review of decision to issue or not to issue certificate, or for amendment of regulations.

Employment of Messengers regulations (Part 523) were issued Oct. 12. Messengers means persons engaged exclusively in delivering letters and messages. Application is made when it is thought that disemployment would result if the minimum wage provisions were enforced. Preference is given to application for or by groups. Decision is based on needs of employees, employers, and the industry as a whole. Burden of proof is on the applicants. Any person may ask for review of decision on whether or not to issue certificate, and for amendment of the regulations.

Employment of Handicapped Workers regulations (Part 524) were issued Oct. 12. Application may be made to employ a worker whose earning capacity is impaired by age or ailment, at less than the minimum wage. Official application forms are provided. Administrator may order an investigation and medical examination. No wage shall be set at less than 75% of minimum. Slowness and inexperience are not regarded as handicaps. Apparently handicapped workers are considered individually. The regulation sounds hard boiled about falsified evidence. Any person may petition for review of decision to grant or to deny certificate, or for amendment of regulations.

General Coverage of the Act is discussed in Interpretative Bulletin No. 1, issued Oct. 12. It says the statute does not confer upon the administrator any power to issue rulings including industries within the coverage of the act, or excluding them. Employments are included or excluded by the terms of the law itself as interpreted by the courts, and not by the force of any administrative action. Interpretations by the administrator, except in certain specific instances where the statute directs him to make certain regulations, definitions and classifications, serve merely to indicate the construction of the law which will guide the administrator in his duties unless and until he is directed otherwise by rulings of the courts. This bulletin is a significant opinion written by General Counsel Calvert Magruder. To attempt to review its contents briefly would be unfair to the reader and to the wage-hour administration. Every interested person should read it carefully.

Coverage in the District of Columbia and Territories, Interpretative Bulletin No. 2, was issued Oct. 17. Congress could constitutionally have taken jurisdiction over *local* commerce in D. C. and the territories, but did not do so. The District, Alaska, Hawaii, Puerto Rico, Canal Zone, Guano Islands, Samoa, Virgin Islands are dealt with on the same basis as the States. The Philippines are not mentioned and are therefore excluded by the U. S. Code.

Temporary Blanket Certificate of Exemption for Handicapped Workers (Part 524) was issued Oct. 18. Because the wage-hour administration was not in full operation, blanket exemption is made in the case of such workers until Dec. 1, 1938. If prior to that date the administrator receives an application for exemption and grants certificate, it supersedes the blanket exemption. If denied prior to Feb. 1, 1939, temporary exemption is nullified immediately upon notice to the employer.

Partial Exemptions for learners, messengers, apprentices and handicapped workers were issued Oct. 19. After regulations were issued it became clear that the division with its limited staff could not handle such a volume of detail. It was decided, and decision announced, to handle learners and messengers on application for hearings. Handicapped workers were left under the temporary regulations as issued, and likewise learners.

Executive, Administrative, Professional, Local Retailing Capacity, Outside Salesman, are defined in regulations (Part 541) issued Oct. 19. Executive means manager of an establishment or department thereof, one who hires and fires, exercises discretion. Professional; intellectual as opposed to routine, one who exercises discretion. Local retailing capacity; employee making sales mostly in intrastate commerce, or work incidental thereto. Outside salesman; employee who regularly performs most of his work away from employer's office. These definitions are hair-splitters, and the full text should be read carefully. The regulation provides that any person may petition for amendment.

Reasonable Cost of Board, Lodging and Other Facilities is set forth in regulations (Part 531) issued Oct. 20. The term reasonable cost means not more than the actual cost to the employer of the board, lodging or other facilities customarily furnished by him to employees. Reasonable cost does not include any profit to employer. Either employees or employers may petition the administrator for a hearing. Any person may petition for amendment of the regulations.

Exemption of Seasonal Industries is made in a regulation (Part 526) issued Oct. 20. The exemptions specifically made in the law under Section 7 (hours provision) are reiterated. Seasonal industry is defined. Applications from groups are given preference over those from individuals. The administrator, upon receiving application, may grant it, may deny it, may set the application for hearing. Any person aggrieved by the finding of a representative of the administrator may petition for a review. Temporarily until Dec. 31 the administrator exempts seasonal industries as defind in the regulation, and sets temporary hours provisions. Hearings are held upon objections, and the findings are published.

Area of Production is defined in a regulation (Part 536) issued Oct. 20. The law says that the overtime provision shall not apply to first processing within the area of (agricultural) production during seasonal operations, and instructs the Administrator to define "area of production." He defines it as work done on a farm, on goods from that or a nearby farm. Any interested person may petition for the amendment of the regulations.

Computation of Overtime Pay is discussed in Interpretative Bulletin No. 4, Oct. 21. It says "The act is clear that it is the employee's regular rate of pay on which time and a half is based, and not on any minimum wage set in the act." The bulletin goes to great length and detail.

Deductions from Wages are explained in Interpretative Bulletin No. 3, released Oct. 21. It sets forth the basic principle that the act does not permit excessive deductions from wages for the purpose of evading minimum wage requirements. The law does not allow employers to profit from furnishing facilities if that profit would bring the wage below the minimum. All manner of deductions are discussed in detail in the bulletin.

Records to be Kept by Employers are explained in a regulation, (Part 516) dated Oct. 21. The form of record is suggested, but is not mandatory. Data to be covered are outlined. Any person may petition for amendment of the regulation.

Child Labor Regulations are set forth in Regulation No. 3, Oct. 22. The Children's Bureau of the Labor Department, under direction of Katharine F. Lenroot, gives in detail the various conditions under which minors of various ages are permitted to work. This regulation is in effect for 90 days, that is, to Jan. 23, 1939. Any person may petition for its revision.

Wage-Hour Act Not Retroactive, Administrator Andrews so declared on Oct. 24, the day on which the law became effective.

Goods for Local Consumption Made from Materials Brought from Another State, are probably exempt as not being "in commerce," according to opinion by General Counsel Magruder in a letter to Millers' National Federation, Nov. 2. But, says Magruder, it is not safe to assume none of employees is covered.

Complaints Held Confidential. On Nov. 8 Administrator Andrews issued a statement that complaints would be held confidential and that anonymous complaints on the telephone would be given attention.

Questions and Answers. Mr. Andrews' office has issued five series of questions and answers on the wage-hour law. The "answers" to many questions are opinions.

A.A.T.C.C. Annual Meeting

Many advances in textile processing discussed at technical sessions

IMPROVED methods of dyeing with napthol colors, new developments in screen and pigment printing, the agricultural and industrial possibilities of flax, and suggestions for increasing the consumption of cotton were among the subjects considered by members of the American Association of Textile Chemists & Colorists who attended the annual meeting of the society, held Dec. 2 and 3, in Atlanta, Ga. Other matters discussed at the technical sessions were the research program of the Textile Foundation at the National Bureau of Standards, textile testing, evaluation of wetting agents, modern package-dyeing equipment, problems of textile students, and the role of starch in textiles.

The convention opened officially at a luncheon meeting at the Atlanta Biltmore Hotel. Speakers were Theodore M. Forbes, executive secretary of the Cotton Manufacturers Association of Georgia; Dr. M. L. Brittain, president of Georgia School of Technology; and Hugh M. Comer, vice-president and general manager of Avondale Mills.

At the Friday afternoon technical session, the first speaker, Dr. Milton Harris, Director of Research for the Textile Foundation Research Fellowship, described the research program of the Foundation at the National Bureau of Standards. The aim of the investigation is to obtain fundamental data on protein and cellulosic fibers. The workers will study the structure of the various fibers and their physical and chemical properties. One phase of the investigation will be to determine the effect of light on all fibers and the influence of agents for inhibiting damage by light. At the present time, eleven research workers are engaged on these problems and several more are to be taken on.

Cotton Consumption

A coordinated program of technical research aimed at the development of new uses for cotton was advocated by Dr. A. R. Macormac and Dr. C. A. Basore, of Alabama Polytechnic Institute. In presenting this paper, Dr. Macormac said that efforts to solve the economic problems of the cotton industry by means of restricted production, price control, and subsidies have not been successful. In the past large sums have been spent on agricultural research to aid the farmer in the production of more and better crops. Fully as important is the disposal of these crops. It is expected that within a short time a Farm Products Research Laboratory will be established by the Dept. of Agriculture in the South and that at least $1,000,000 a year will be available for research on peanuts, cotton, and sweet potatoes. The work on cotton should include a study of new uses for the fiber, the seed, and the whole plant.

Textile Testing

According to Robert H. Adams, of Callaway Mills, the three major elements affecting the accuracy of testing of textile fabrics are the human element, the testing apparatus, and atmospheric conditions. The first requisite is a trained laboratory staff made up of technicians who preferably have had some mill experience. The chief of the testing department is responsible for the planning of the work. The chief operator should check constantly to see that the right apparatus is being used and is being used right. Equipment must be installed properly and maintained in first-class condition; a regular procedure for the weekly cleaning and checking of apparatus should be set up. The ideal laboratory should have atmospheric conditions automatically controlled.

Dr. Carl Z. Draves, of Ludlow Mfg. & Sales Co., reported briefly the results of a preliminary investigation of the A.A.T.C.C. official method for the evaluation of wetting agents as compared with the more recently developed canvas-disk method. Studies made thus far indicate that both methods have merits and it may be advisable to adopt the disk method as a tentative, alternative procedure.

Dyeing Naphtols

Discussing the "Dyeing of Napthols on Cotton Piece Goods by the Continuous Hot Flue Method," S. H. Williams, of General Dyestuff Corp., pointed out that recent developments in the application of Naphtols produce results which are far superior to those obtainable a few years ago. Selection of suitable color combinations and use of up-to-date machinery give the best dyeings. A properly designed pad, which will permit uniform saturation of the fabric and a good squeeze, is essential. It has been found advisable in the case of concentrated solutions to pad at a temperature of about 200°F. Various assistants can be employed to minimize foaming and to increase the penetrating properties of the developing solutions.

For drying, a recently developed hot-flue or vapor type of dryer is recommended. This dryer is a balanced unit, fitted with temperature controls, and designed to lessen the migration of the naphtol. As the solutions of fast color salts or bases employed in developing are not very stable, the dyebath should be as small as possible and there should be an overflow to carry off any precipitate. The developing pad should be equipped with a refrigeration unit, as use of ice gives a dilution problem. Proper pH control of the bath is important. The goods leaving the developing bath should be skied to give adequate time for coupling, run through boiling water, with a large overflow to wash away impurities, and after-treated with Igepon and soda ash. Some shades must be rope-soaped to obtain the true shade and maximum resistance to crocking.

Flax and Its Possibilities

The first subject to be discussed on Saturday morning was the possibility of reviving the flax industry in this country. C. G. Worthington, Research Fellow at the State Engineering Experimental Station, Atlanta, Ga., described the work now in progress on the growth and utilization of flax. The greatest possibility for use of flax products appears to be in the cotton-textile, the cottonseed oil and the paper industries. Methods have been developed for decorticating and degumming flax, and for spinning it in combination with cotton on conventional equipment. These methods need further refinement. Also, further study is necessary to determine the best regions for growing flax. Towels, suitings, upholstery fabrics,

etc., have been produced experimentally from domestic flax.

Package-Dyeing Equipment

Discussing modern package-dyeing equipment, Thomas R. Smith, of Wiscassett Mills, stated that probably more cotton yarn is now being dyed on package- and beam-dyeing equipment than in any other way. Proper selection of dyes and chemicals, use of soft water at the correct pH, and uniform winding of the yarn are all vitally important. Cast-iron and sheet-steel package-dyeing machines are being replaced by stainless steel of the 18-8S and 18-8SMo types. These newer machines permit production of more dyeings per day, yield brighter shades, result in few redyes, and insure absence of rust. The pump is the heart of the machine, and packings should be inspected regularly once a week. Automatic controls reduce the danger of error. Heating of the dye liquor should be by means of closed coils. Modern pressure-type extractors and closed-kier type dryers reduce the time required for drying, cut labor costs, and facilitate winding. In conjunction with Mr. Smith's paper, W. A. Wolhar, of Rosemary Mfg. Co., showed a moving picture which he had taken of operations in the package-dyeing department at Wiscassett Mills.

Problems of the student of textile chemistry and dyeing were outlined by Prof. Albert H. Grimshaw, of North Carolina State College. After deciding where he should go to college and what course he should take, the boy—if he has decided to major in textiles—still has a choice between manufacturing, management, designing and weaving, knitting, and chemistry and dyeing. Color-vision tests are valuable in determining whether or not the student should elect the chemistry and dyeing course. One of the problems of the student is to obtain an understanding of mill practice, as well as the theoretical training which takes up a large share of his time. And finally, when he has graduated, he has the problem of finding a job.

Screen Printing

"Screen printing is becoming more important all the time," said Ralph D. Greene, of Calco Chemical Co. As contrasted with roller printing, screen printing permits production of larger repeats and shorter runs. This method, however, is confined to fairly large or coarse objects, the labor cost is higher, and production is slower. Mr. Greene then described in detail the equipment used in screen printing and discused the preparation of the screens by the hand method, the wash-out method, and the photographic method. He then outlined the various operations involved in producing the printed patterns, and showed a number of screen-printed fabrics.

Printing With Pigments

Printing of textiles with pigments was discussed by Henry L. Young, of Aridye Corp. According to Mr. Young a pigment printing paste suitable for use on fabrics consists of a pigment dispersed in a vehicle composed of a binder and a solvent. Such pastes can be applied on ordinary roller-printing machines to give sharp marks, good tonal gradations, and brilliant colors. Pigment pastes are supplied ready for use and can be mixed with one another to give compound shades. After-treatment of cloth printed with pigments is limited to drying on dry cans, followed by momentarily heating at a higher temperature in a dryer or on a tenter. Color matching is simplified, because the colorist is dealing with final colors. Pigment pastes can be run on naphtholated grounds, making it possible to run pigments on one roller and Rapidogens on another. It is also possible to run vats on one roller and pigments on another. Pigment printing will put the engraver to a real test, as any imperfection in engraving is more noticeable; on the other hand, the engraver's best efforts will be recognized.

The final speaker on the technical program, James W. Stallings, of Stein Hall & Co., discussed the role of starch in finishing and printing. After outlining properties of starches and modified starches, Mr. Stallings urged care in the selection of starch products for specific purposes and pointed out the need for control in the preparation of finishing solutions. He then took up the effect of temperature, viscosity, and pressure on the penetration of the goods by starch. In conclusion he discussed some of the newer modified starches, developed for use in printing and for finishing goods to be Sanforized.

Alban Eavenson reelected president of A.A.T.C.C.

Dr. Milton Harris, who spoke on the Textile Foundation's research program

Ralph D. Greene, who spoke on screen printing

Hugh M. Comer, who gave a mill executive's viewpoint on dyeing and finishing

Annual Banquet

Speakers at the annual banquet, held at the Atlanta Athletic Club, were Arthur R. Thompson, Jr., vice-president of the A.A.T.C.C.; Prof. Louis A. Olney, president emeritus and chairman of the research committee of the association; Alban Eavenson, president; and Walter F. George, Senior United States Senator from Georgia. Robert W. Philip, editor of *Cotton* and chairman of the Southeastern Section, A.A.T.C.C., acted as toastmaster. Diamond-studded pins were presented to all past-presidents.

At the business meeting the following officers were re-elected: president, Alban Eavenson; vice-presidents, Duncan Ferguson and Arthur R. Thompson, Jr.; treasurer, William R. Moorehouse.

Mill-Plantation Scheme

Suggested as a solution of the unemployment problem

By R. K. WHITTIER

Vice-president, Kentucky River Mills, Frankfort, Ky.

We accepted this article for two reasons: First, because of the novelty of the scheme proposed; and, second, because in our opinion the existence of broad thinking of this type on the part of a textile manufacturer is one of the most hopeful signs imaginable. What is needed is more of it—whether or not one agrees with the points of view expressed.

We should welcome opinions from readers on the plan proposed by Mr. Whittier.

—Editor.

THERE used to prosper in the United States what were known as subsistence farms. They were singly owned, but on them many persons earned their keep: food, shelter, clothing, everything needed for physical welfare.

Their day is done, but the idea is as good as it ever was . . . *if* geared to modern equipment.

It is not a big *If*.

Let us suppose that a textile plant, employing 1,200 workers, acquired 11,000 acres of land: 4,000 to be put under cultivation, 3,000 in pasturage, the remaining 4,000 held in wooded land and for building sites. The livestock would consist of 1,000 milk cows, 260 beef cattle, 2,500 hogs, 7,000 laying hens, 7,000 pullets, and other stock and equipment that would go with such an enterprise. To till the land, tend the stock and perform other duties incident to the operation of a farm would require an average of 200 additional workers, or one farm hand to every six mill hands.

To operate the textile mill at maximum efficiency, the management would provide for full-time operation of three eight-hour shifts for five days each week. However, labor emergency requirements on the farm, which might call for the services of all, or some, of the 1,200 mill workers, would interrupt this mill schedule. Conversely, when work on the farm was at a standstill, the mill would have to absorb most of the 200 workers normally employed on the farm. To meet such situations it might be necessary for the mill-plantation management to install a small garment department to absorb temporarily idle workers.

Labor assignments would be made by a planning department which would function for both mill and farm. Assignments would be so planned that every employee would get eight hours' work each day for an average of five days a week, and each worker, whether in the mill or the office, would receive an equal share of the farm assignments, or an average of four hours out of each 28 working hours. The supervision of assignments would be by trained supervisors, such as the foremen and second hands of the present type of mill organization.

During various short periods throughout the year it might be necessary to reduce the mill force to two shifts, or even one, because on certain days during planting and harvesting seasons the farm would require as many as 700 or 800 hands in the fields for as long as one to five days at a time.

While this labor reserve is vital to the project's success, its occasional diversion from the mill would not work disadvantageously, because the extent and duration of these peaks can be determined in advance and the mill's sales and deliveries could be planned accordingly. As the exact dates of the peaks of farm labor requirements cannot be accurately determined, however, it probably would be necessary for the mill to build up small stocks during certain seasons and thereby obviate interruption of shipments which normally would be caused by a temporary curtailment of production due to the diversion of mill operatives to the farm.

Practical Effects of Plan

The plan's practical effects would be various, including one of great value: its contribution to the solution of the problem of unemployment. For, while the mill-plantation described is planned to accommodate 1,400 employees, or 700 families totaling about 3,500 men, women and children, a plant that could adopt a project on this scale would be equivalent in size to the present type of textile plant employing 400 operatives for one shift, or 800 for two shifts. The mill-plantation described would have to employ about one additional farm employee to every six mill employees . The farm employees would have to learn mill work, and the mill hands would have to learn farm work.

Virtually all the food that would be consumed by the 700 families of mill-plantation workers would be produced on the farm. It would be necessary to maintain a canning plant, flour mill, syrup mill, cold storage plant and small meat-packing house.

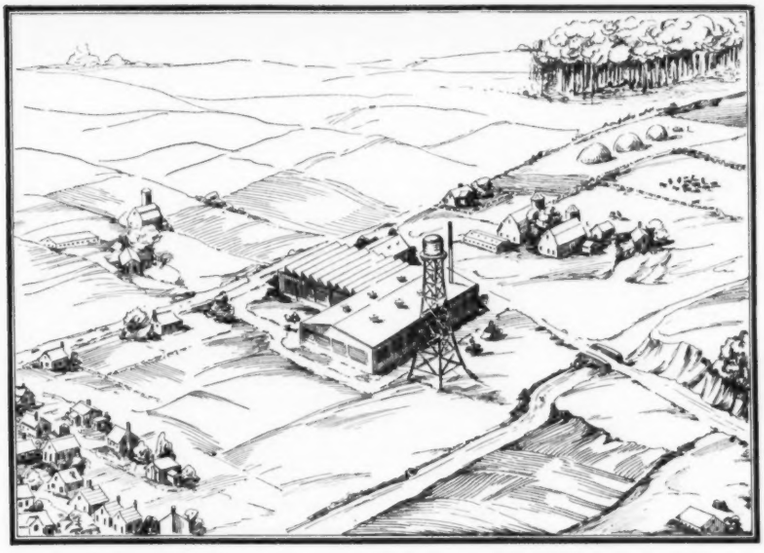
Each mill family, according to available estimates, consumes an average of $768 worth of food annually, all of which they buy at retail prices. The average spread between the cost of producing these foods on the farm and the cost to mill hands is about 40% of the retail price. Eliminating this spread would mean an annual saving of $215,040 to the 700 families of mill-plantation workers.

A contributory factor to low-cost production would be the flexibility of labor supply whereby such a mill-plantation would use on the farm only the exact number of man-hours required. Its large labor reserve could be thrown into a field at the proper and advantageous time to do in one day what would not be possible to accomplish in that time on the ordinary farm. An additional source of income would be surplus foods grown for sale in the open market. The residue would be used for the subsistence needs of the mill-plantation employees.

The Wage Arrangement

In order to assure management of a substantial profit for division between stockholders and workers, mill hands would probably have to be hired with the understanding that for the first three months, at least, their wages would be lower than they had been accustomed to receive. The quarterly division of profits between workers and stockholders, whereby each worker would receive a fixed per cent as a bonus, would probably bring their weekly wages in excess of that they formerly received.

A mill operative's weekly wage un-



Adjoining lands will provide subsistence for mill workers

der the proposed set-up would be computed as follows: His base wage per hour would be multiplied by the number of hours of work performed that week, to which would be added his proportion of the profits as shown by the quarterly closing of the books. From this total would be deducted the amount of his rent, fuel, and store account. The balance, which would be about 40% of his total wage, he would receive in cash in his weekly pay envelope. Employees would be requested to buy all their subsistence needs on credit at the farm warehouse. The prices charged for them would be equal to chain-store retail prices, or local prices, whichever was lower.

If the mill-plantation worker received a relatively low hourly wage, he would also receive a relatively high bonus, for this arrangement would assure to the plant a profit, in which the worker would share after the quarterly closing of the books. Under this delayed-pay system the worker would receive the bonus equally divided over each week of the three months following the period in which his bonus was earned. Since a fair dividend would also be paid to stockholders, the worker would have assurance of the permanency of his job because of the mill-plantation's sound financial policy.

The proposed organization would sell its product on the market at whatever price would be obtained, but in no circumstances would the mill-plantation slacken up on either efficiency or volume production. Should other members of the textile industry fail to meet the competition of the mill-plantation, there would always be a fair profit for division between workers and stockholders. Should a majority of textile plants find it advisable to adopt the plan, those units remaining aloof would have to meet the extremely low prices of the others, and either fail or eventually be forced to adopt the mill-plantation scheme. Should all units in the industry be thus forced into combining their textile mills with agricultural operations, the industry would then be in a position to act as an association of textile manufacturers to decide upon the proper manner of hours for the operation of the textile branches of their units, so that the combined volume of operation could be balanced with supply and demand.

Industry-Wide Effect

Acting as a whole, in this way the industry would prevent over production of textiles and the consequent collapse of market prices. Cooperation by each member plant in curtailing the output of its mill to the agreed limit would not necessitate laying off mill hands, for there would always be the farm to absorb the extra labor, or some of it; or, if this were not convenient, labor would have to be content with what time it could get at the mill. Nor would the mill-plantation workers' purchasing power be greatly impaired, as their increased earnings per hour, due to the better margins on which business would be conducted, would tend to offset the loss in hours of work.

If the scheme outlined were demonstrated to be feasible and should result in assuring security to the industry, its workers and investors, it is probable that other industries would adopt it. General adoption of it would mean that a great many organizations would add approximately 15% to their working forces to meet the requirements of farm operation. While this would greatly augment employment in industry, it might result in throwing out of employment large numbers of urban workers in trades formerly serving industrial workers who had removed from cities to the rural districts to which their plants had been transferred. Likewise, the individual farmer might suffer from the competition of the surplus farm products dumped on the market by the mill-plantation.

Unquestionably, a readjustment would be necessitated. However, it is probable that when a great many mill-plantation combinations came into existence, business would prosper to the point where there would be greatly increased purchasing power. This would make a better market for all products of agriculture quite as much as it would for the products of industries. Briefly, it would supply a cash crop to agriculture just as it would supply a subsistence stabilizer to industry.

A prime result of any general adoption of the mill-plantation scheme would be the opportunity it would afford for the natural operation of the law of supply and demand and the correction of our present unbalance which is so largely responsible for our economic ills.

It is not suggested that it would be practicable to attempt to introduce the mill-plantation scheme on a horizontal scale of mass action; it should be adopted only by those plants adapted to the operation of a combined mill and farm, and then only when it promises to be financially successful.

Probably the wisest course would be to regard it as a laboratory experiment extending over several years, submitting it to tests which would find the flaws in it and, as they are discovered, correcting them to provide a working model for subsequent adoption.

In view of labor's suspicion of profit-sharing systems in industry, it may be objected that a similar attitude may be expected from it toward the mill-plantation scheme. This is unlikely, however, because under the plan proposed all reasonable doubts and misunderstandings, which in the past have been responsible for labor's lack of warmth toward profit sharing, will have been removed by an agreement as to the respective proportions distributed to workers and stockholders, and as to the methods of computing profits. For the mill-plantation system would use a basis of measuring labor assignments and performance that is sound and mathematically correct, rather than relying upon an overseer's guess or that fallable factor known as judgment.

Cotton Futures Maladjustment

A simple (as possible) analysis of a very complicated present problem

WHILE the cotton shippers and spinners battle over futures contracts changes, and as maladjustments in the cotton market develop, the man-in-the-street wonders what it is all about. And in this instance the cotton manufacturer, even though he is using the futures market, may not know much more than the man-in-the street. The technique involved is almost frightening. Consequently we have asked one close to the situation to analyze, as simply as possible, the present problem. Here it is.—

FUTURES quotations on the New York Cotton Exchange do not reflect the actual cost of cotton landed at the mills. There are a number of items in the form of premiums and added costs (known to the trade as "basis"), which, added to the futures price, makes the actual delivered price on cotton. For instance, at this writing, middling 1 1/16" cotton is costing the mills 10.75¢ per lb. when December futures are quoted at 8.25¢. This method of "pricing" is confusing to the layman or to the purchaser of manufactured cotton goods, since prices on competing fibers are generally quoted at the actual selling price.

Selling or buying futures against the purchase or sale of the commodity represented by futures is better known as "hedging." Ultimate liquidation of the contract should give a profit or loss which wipes out the loss or profit in the actual transaction, thus avoiding speculation for the user of the raw material. A close correspondence in price movements of the contract and of the actual commodity is necessary or hedging becomes impaired. Just now spot and contract prices on cotton are out of line, as spots are high relative to contracts, and distant months are selling at a discount under near.

This badly distorted situation in the spot and futures market is due to the enormous Government holdings of cotton under the various loans, which creates an artificial scarcity, reflected in the abnormal basis "ons" and, of course, in turn leading to premiums on the near positions. The huge actually existing surplus (estimated at 8,598,474 bales) plus the uncertainty as to what actions the Government may take with respect to it over night, discourages any bullish speculation and leads the distant months into abnormal discounts. An unbalanced market situation has thus been created which has limited the usefulness of the futures contract for hedging purposes. Buyers of raw cotton and buyers of manufactured cotton products, who formerly invested in large stocks, are now unwilling to carry inventories beyond immediate or assured needs.

What Should Be Done?

There are several schools of thought on the remedy for this situation. The cotton shippers (as represented by the exchanges) say that the confusion arises from the fact that the "market" and "basis" are entirely separate—that a futures contract never fails as a market hedge but never should be used as a basis hedge. Since the "market" and the "basis" are now widely divergent, they must be brought closer together. They advocate a re-arrangement of the futures contract to permit a more accurate reflection of the value of American cotton, of which there are over 200 different kinds.

The present futures contract, though it formerly represented the staple lengths of the bulk of cotton grown in the United States, no longer does so. Campaigns for the use of better seed have been successful to the point where now 7/8" staple in any grade is the scarcest quality in the year's crop. The present contract permits delivery at seller's option of 15 different grades and three different staples—7/8", 15/16", and 1", or 45 different qualities. The exchanges propose to add 31/32", 1 1/32", and 1 1/16", which would allow 90 different qualities deliverable on one contract of 100 bales. They advocate allowance of full premiums, instead of the 60% on tendered staple lengths over 7/8".

On the other hand, the cotton manufacturer's side of the case is that he cannot be called upon to buy his requirements over-the-counter of the Cotton Exchange, due to the fact that in all cases manufacturers must have evenly classed staple and especially selected character. Nevertheless, the contract should be made more valuable to him. The spinners suggest the contract be revamped to allow only one notice day; only two consecutive grades and staples on any one contract delivery; and only one delivery point per contract. They also suggest a penalty of 10¢ per bale per month on certified stock after the seventh month.

A New York Cotton Exchange member has proposed a still different program which would (1) reduce deliverable grades to nine by eliminating the color grades of tinged, yellow stained and gray, and limiting the spotted grades to middling spotted and strict middling spotted; (2) require not more than three contiguous grades on each 100-bale contract; and (3) base the contract on middling 15/16" with a discount for 7/8" equal to full market average; allow a premium of 75% of the 10-market average for 1" and 1 1/16" but not allow staple premiums on any contract containing more than 2 contiguous grades. Although the buyer of the contract may never intend to take delivery under it, the contract should result in something of commercial value in event that delivery is taken.

A more general school of thought which includes both mill-men and cotton-men is that if the Government would get out of the cotton business, the distorted futures situation would, in due course, readjust itself.

However, at best, futures prices would not include the cost of transportation to mills; the cost of assembling even-running qualities for the mills; the profit to which the cotton shipper is reasonably entitled. They are indicative only of the description named in the contract and do not reflect higher grades or longer staples.

In view of the misunderstanding on the part of the market public as to quoted futures prices, a feasible solution to the problem might be to have reliable trade papers carry daily cotton quotations, on strict middling 1", 1 1/16" and 1 1/8" landed at the several mill group points in the Southeast and in New England. Such quotations should include landing costs of transportation, profit to shipper, and all other such items as make up the "basis." Such a quotation list should materially mitigate the effects upon Worth Street, upon the fabric buyer, upon the yarn buyer, or even upon the general public of seeing only a cotton exchange quotation on middling 7/8" which registers in their minds as the legitimate delivered sales price on spinnable cotton.

Public Relations Response

A sample of what the industry is doing —Pacific rates job-of-month

***BY BOTH word and deed, the textile industry is putting full steam ahead on its public relations job. Never in this writer's experience have so many and such constructive plans been under way. A few of them are mentioned on this page, as well as a small part of the additional comment we have received in connection with the Public Relations Section in our October issue. . . . . We repeat that these are far from all-inclusive; in fact they are merely suggestive of the type of both action and comment which now prevails. We again urge our readers to continue to call our attention to worthwhile jobs being done in this field.*—Editor.**

THE Public Relations Job No. 1 of the last month in the textile industry was that done by Pacific Mills. It wins hands down. In a full-page advertisement, it tackled courageously, eloquently, and constructively, the problem of events abroad. The advertisement, under the caption "In Time of Crisis," stated:

"At this crucial moment in the affairs of mankind it is for each of us, regardless of race, religion or party, to accept the statements of the President of the United States as the expression of the entire nation's horror at events abroad. But acceptance is not enough. It is still incumbent upon each of us who can make his own individual feelings manifest, to testify openly to his deep sympathy with the innocent victims of persecution. For this reason Pacific Mills makes this public profession of faith —faith in democracy, faith in liberty, faith in the power of public opinion to mitigate the sufferings of the persecuted" . . . The response which the company received from this advertisement was overwhelming.

Our next citation goes to a company "down under." "What's Going on at Bond's?" is the subject of an ambitious publication in which the candid camera takes the buyer through the mills, salesroom, and even into a directors' meeting of Bond's, Australia's leading hosiery and underwear manufacturer.

Coming back to this country, the Cotton Manufacturers Association of Georgia has started an educational advertising campaign based on the slogan "Let's Keep the Cotton Mills in Georgia." This is a follow-up of a similar previous campaign, which created much favorable comment.

A cooperative job between a textile association and a State is that in which the Southern Combed Yarn Spinners Association is working with the North Carolina Department of Conservation and Development in the creation of a series of excellent photographs portraying textile mill life in the State. The value of this will be appreciated by all those who know how this subject has been distorted.

The Cotton Manufacturers Association of South Carolina, which has conducted a public relations activity, over a period of years, has published Vol. 1, No. 1, of "The Ed-Clip Service," sent weekly to interested editors, and quoting from the newspapers of the State editorials which the association believes to be outstanding and worthy of further consideration.

The third issue of the recently established *Pequot Shield* gives news of several interesting public relations activities on the part of Pequot Mills, Salem, Mass. For one thing, the company had a community-wide open house Dec. 5, 6 and 7; a welcome was extended to the entire community. The second item is the starting of the first textile class, for the study of cotton mill processes.

To meet the problems of a far-flung organization, the editors of *The Field Glass*, published by Marshall Field & Co., have transformed this organ into a news-magazine which will help everyone to get a much better idea of "who's who" and "what's going on" in the organization.

A most effective way of building up correct knowledge of the textile industry is that adopted by Wellington Sears Co. in the publication of a folder "Facts About Cotton," distributed as an educational aid for teachers and students; it covers growing of cotton and the manufacture and distribution of cotton products.

A continuing job is that done by Pepperell Mfg. Co. in its utilization of the *Pepperell News Sheet* for consideration of many public relations problems, rather than confining it to purely sales promotion.

Some Pertinent Comment

We ran in these columns last month extracts from some of the letters received in connection with the Public Relations Section in our October issue. We are publishing some additional thoughts herewith.

Charles Whitney Dall, president of the National Rayon Weavers Association, raises the interesting question whether any amount of public relations activity in advance would have prevented the textile strike of 1934, which was particularly virulent in the South where the majority of help, Mr. Dall feels, have had a fairly clear realization of what cotton mill communities have done for the people of that section. This raises an extremely interesting point and we should like to get reactions of our readers to it. It is well worth exploring.

Although endorsing the idea of the necessity of a public relations movement, A. J. L. Moritz, vice-president and technical manager of American Enka Corp., points out one limitation, namely, the danger that some people who never before have given this part of their job a thought will now all at once jump into it and thereby probably be inclined to overdo it. He suggests that in some cases situations might develop such as those which happened at the beginning of the NRA, when those who never had any thought about employee representation tried all of a sudden to create their own company unions. The important moral from this is that improvement of public and internal relations cannot be developed in one day, but must be achieved slowly and carefully over a period of time. Certainly, any student of public relations will agree heartily with this point of view.

Most textile manufacturers, in the opinion of A. M. Tenney, of A. M. Tenney Associates, have been slow in coming to the realization of their duties to the public. "Up to a certain point they have recognized what they owe to the small community in which they have their plant," he states. "They have not recognized that with their growth and the increase or wider distribution of their manufactured product, their responsibility in taking active interest in public welfare is almost mandatory, if they expect to be allowed the privilege of serving their customers without interference."

"More enlightenment on the subject of public and industrial relations is certainly very desirable at the present time," comments Hugh Hemmerich, of the Berkshire Knitting Mills.

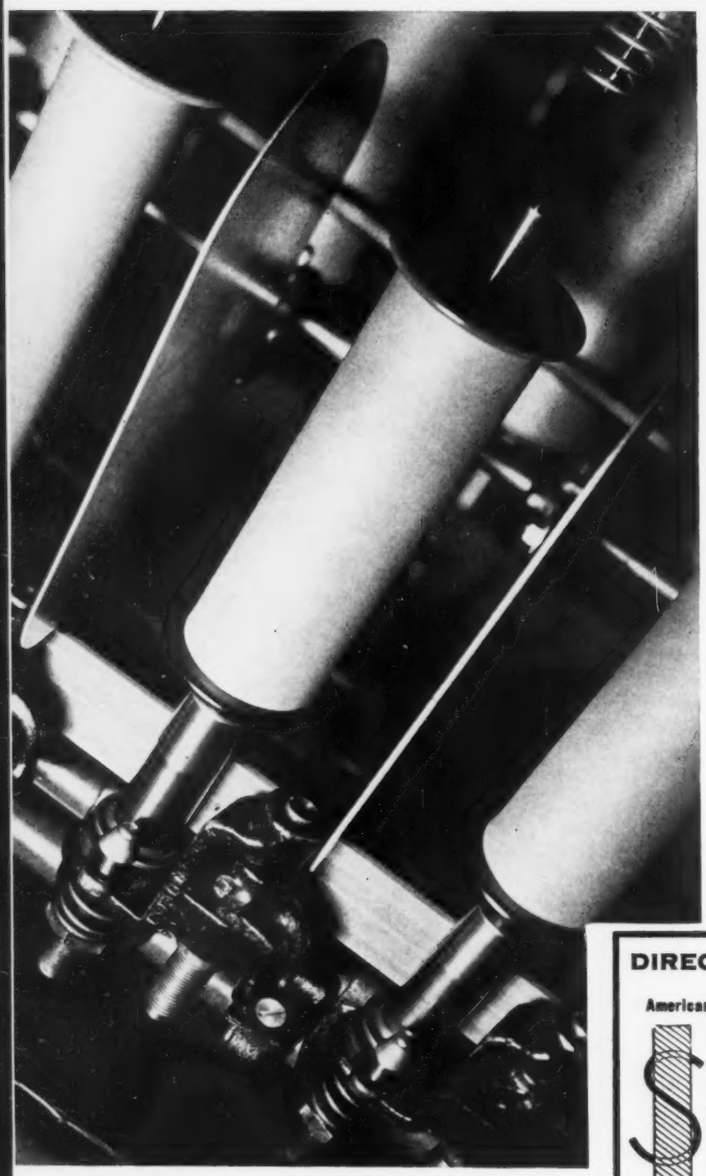
Further comment on any phase of this whole subject is invited.

Throwing Combination Yarns

Twist, tension, and package size are important factors

By JOHN N. BACCASH

USE OF combination yarns in better-grade dress fabrics is the predominating influence of the day. These yarns are offshoots from and developments of the old ratiné yarn and, in this writer's opinion, are definitely with us to stay, because of their widespread uses and customer appeal. There are many variations of combination yarns. One of the most popular twists incorporates 100-den. dull acetate yarn of 3/5 turns with 75-den., 30 filament, 60/65 turn, bright viscose crepe yarn. Another popular combination comprises 150-den. dull acetate yarn of 3 to 5 turns and 100-den., 40 filament, 50/55 turn, bright viscose crepe yarn. In each case, one end of acetate is doubled with one of viscose crepe and given 12 to 15 turns of twist. A third popular yarn is that which combines an end of the novel thick and thin viscose crepe, of about 36 turns twist, with an end of normal-twist acetate yarn. There are also numerous other combination yarn versions, and the ever-changing demands of fashion will require continued versatility on the part of technicians in developing further new types.



Among defects which were most prevalent in early combination-yarn fabrics are bars, loops, split binders, etc. Yet, in spite of research and development in throwing machinery, there remain many mills that are still producing these yarns on obsolete equipment. Such manufacturers are so far behind in production and efficiency as to be at the mercy of more progressive competitors in this field.

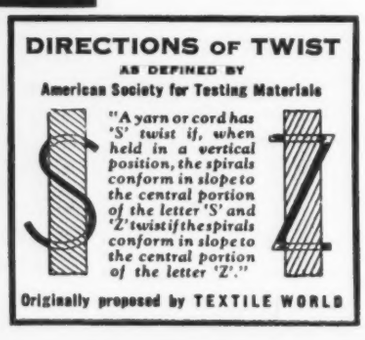
Correct procedure for manufacturing combination-yarns indicates doubling of an S-twist acetate yarn of 3 to 5 turns with an S-twist viscose crepe yarn of high twist. Frequently, more especially in the earlier days, little importance was attached to the necessity of doubling-twisting S-twist with S-twist and Z-twist with Z-twist. Oftentimes, an end of S-twist acetate was coupled with an end of Z-twist viscose crepe. This oversight was responsible for undesirable shaded effects throughout the goods, in addition to handicapping production and increasing waste. The shaded areas were a direct result of slack twist caused by improper doubling and subsequent twisting of yarns having unlike direction of twist.

No little stress should be placed on the matter of proper humidification and tensions in winding and all subsequent throwing processes. Because of the higher humidity usually necessary in throwing departments, it is well that such rooms be segregated as much as possible from other departments. A relative humidity of about 65% will be found to be conducive to good results in the throwing of combination yarns. Too much tension on the yarns, either singly or in the ply, will have a tendency to stretch them irreparably and cause damage which cannot be detected until the fabrics are dyed and finished.

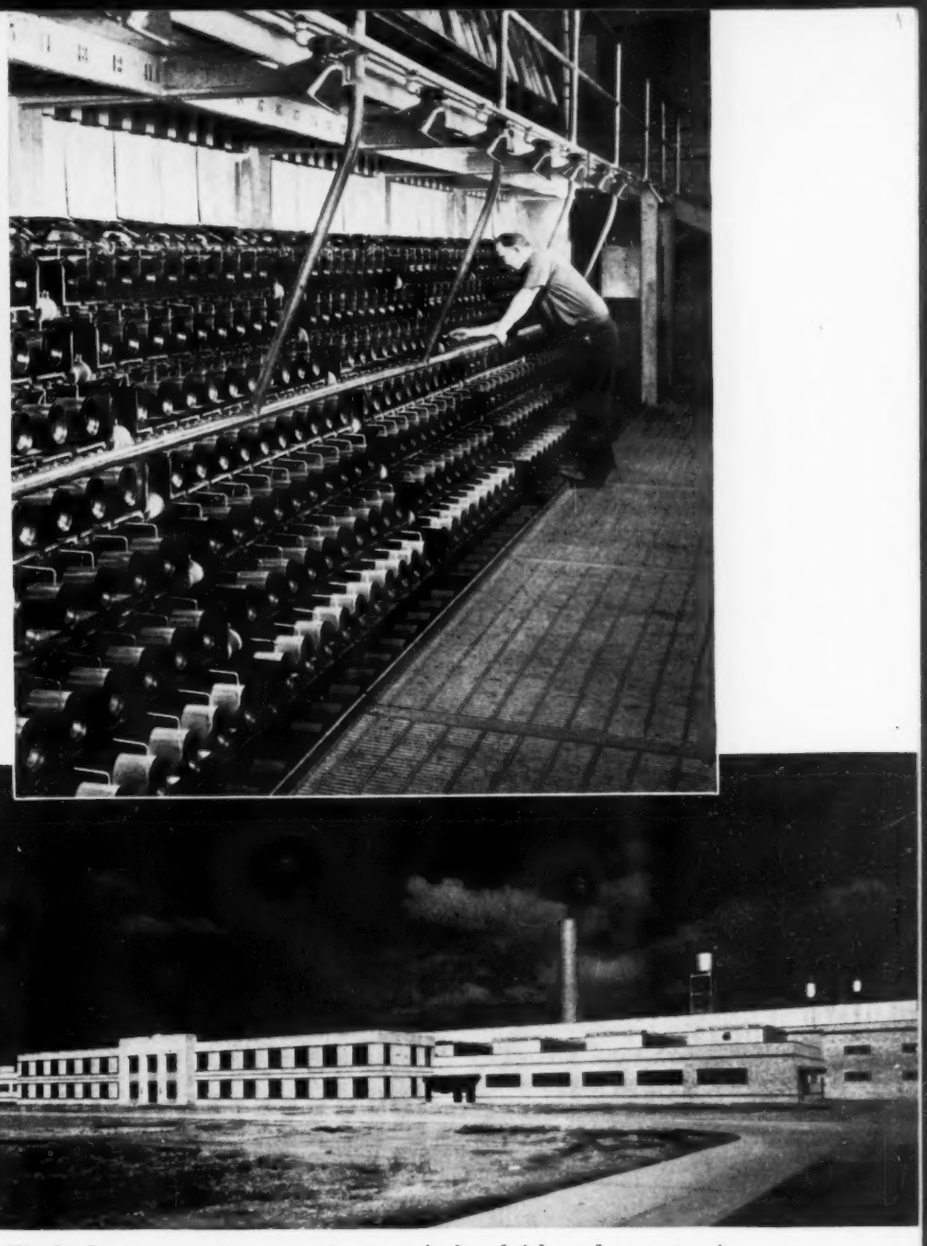
Development of large packages for use in throwing of combination yarns is of major importance. As applied to the acetate-viscose yarn, their evolution is comparatively recent. The old, small 5B silk bobbin, which is still used in some mills, has a 2-in. head, 1¼-in. barrel, and 4-in. traverse and is distinctly outmoded when it comes to combination yarn throwing. A bobbin of this sort, when full, will contain approximately 2 to 2¼ oz. of yarn; when it is considered that the aggregate size of the yarn may be 175 to 250 den., it is not difficult to visualize how little yarn, in yardage, the bobbin holds.

There are several large 5B bobbins recommended for use with combination yarns. One of these with 2½-in. head, 1⅜-in. barrel, and 4 7/16-in. traverse, is quite popular; and a bobbin of this size will hold more than twice as much yarn as the first type mentioned. The cost of remodeling an old 5B, and the additional few changes necessary on the uptwister, are small when compared to the results in production and quality.

(In an early issue, Mr. Baccash will discuss soaking and tinting for combination yarns, and setting the twist in yarns of this type.—*Editor.*)


DIRECTIONS OF TWIST
AS DEFINED BY
American Society for Testing Materials
"A yarn or cord has 'S' twist if, when held in a vertical position, the spirals conform in slope to the central portion of the letter 'S' and 'Z' twist if the spirals conform in slope to the central portion of the letter 'Z'."
Originally proposed by TEXTILE WORLD

Industrial's plant for Continuous Viscose Spinning



Windowless construction, extensive use of glass brick, and separate air-conditioning units for each department are among the features of the new, 14-acre, $11,500,000 plant built by Industrial Rayon Corp., at Painesville, Ohio, for production of viscose rayon weaving yarns by continuous spinning process. At top—continuous spinning machine

CLIMAXING six years of research and development, commercial production of viscose-type rayon weaving yarns by a continuous spinning process was started last month by Industrial Rayon Corp., in a new plant at Painesville, Ohio. The distinctive feature of the process is that it embodies the use of a new type of spinning machine on which the yarn is desulphurized, bleached, finished, dried, and twisted continuously—the complete sequence of operations requiring only about 4½ to 5 min., as compared with 85 hr. for the usual discontinuous methods. Preparation of the viscose solution follows conventional procedure. Aside from its economies, the process has the further advantage that it affords positive control of tension and other conditions from the time the filaments are formed until they are dried, thus assuring uniformity of the yarn as regards strength, elasticity, elongation, and other properties. Another noteworthy feature is that it permits application of gelatine or other sizing materials during the spinning operation. With some modification, the continuous process is suitable for production of rayon staple.

The general design of the spinning machine can be seen from the illustration. The glass-inclosed section of the machine shown behind the railing at the top of the photograph contains a row of Bakelite reels; under each reel is a spinneret submerged in a coagulating bath. The machine is double-sided with 50 spinnerets to a side. Next are eight rows of hard-rubber reels, shown clearly in the illustration. Below these, and not visible in the photograph, is a row of aluminum reels; and below the aluminum reels is a row of cap twisters. The total height of the machine is about 23 ft., with three working levels; the photograph was taken at the middle level.

The filaments formed when viscose solution is extruded from the spinneret into the coagulating bath are led upward through the bath and around one of the Bakelite reels. They then proceed downward around one of the hard-rubber reels in the top row, and then around a reel in each of the other rows. As can be seen from the illustration, over each reel there is a glass pipe from which is flowing the chemical solution or the water with which the filaments are treated while they are passing around that particular reel. Drying takes place on the hot-water-heated aluminum reel. The final operation in the continuous process is twisting and winding on to spools. The yarn is then rewound on cones on Universal winders in a separate department.

At present, yarn speeds of about 80 yd. per min. and twister spindle speeds of 9,000 r.p.m. are being obtained. Each package contains approximately 2½ lb. of yarn.

Rayon Machinery Corp., a wholly owned subsidiary of Industrial Rayon Corp., was organized to manufacture the continuous spinning machines for Industrial's use, and to build, install, and service similar units for other rayon producers. The new plant at Painesville will house 96 of the continuous machines, together with complete equipment of the latest types for production of the cellulose xanthate from which the yarn is spun. Hiram Rivitz, president of Industrial Rayon Corp., states that the plant is expected to be in full operation by March, 1938, and that ultimately it will give employment to about 1,000. Initial production will be approximately 12,000,000 lb. of yarn a year.

Research Institute

Holds conference on warp-sizing investigation, announces study of inventory policies

FEATURES of the annual meeting of the United States Institute for Textile Research, held Nov. 10, in New York, included an open conference on a proposed investigation of warp sizing of cotton and spun rayon, the announcement of a new economic study of textile inventory policies and statistical guides, and the presidential address delivered by Dr. Elvin H. Killheffer.

Members of the Institute and others attending the conference agreed unanimously that there is a real need for cooperative research on sizing of cotton and spun rayon warps, and that preferably such an investigation should be conducted in the South. Representatives of several companies indicated that their firms would be willing to lend financial support to the study.

To Study Inventory Policies

One of the most important developments at the meeting was the announcement of a new economic study to be financed by the Textile Foundation, covering Textile Inventory Policies and Statistical Guides. This study follows the one on Vertical Integration in the Textile Industries, which also was financed by the Textile Foundation, and which was completed last June. The new project, like the previous one, was recommended to the Foundation by the Committee on Economic Research of the U. S. Institute for Textile Research. Fessenden S. Blanchard, chairman of that committee, described the plans for the study at the Institute's banquet. The other members of the committee are: Dr. Paul T. Cherington, Stanley B. Hunt, H. V. R. Scheel, W. H. Turner, A. W. Zelomek, and Douglas G. Woolf.

This research project as presented to the Foundation is described as follows by the Committee on Economic Research:

"The various branches of the textile industry have suffered greatly from the effects of violent fluctuations in buying. These effects have been due, at least in part, to inadequate knowledge of commitments and inventories and sales at each stage in the channels of distribution from mill to consumer. There has been a lack of danger signals, which, by focusing attention on inventory trends, would serve as a warning of approaching trouble and enable better control to be exerted by the various factors in the textile industry. It is one purpose of the report to review what has happened in the past few years in connection with inventories and their effects on operations. Another purpose of the proposed project is to show the degree to which present statistical information is adequate and inadequate, to indicate the relative importance of these factors at any given time, and to recommend how and wherein such statistical data should be expanded."

Elect Officers and Directors

New directors elected at the annual meeting included Dr. F. Bonnet, American Viscose Corp.; Erb N. Ditton, Gotham Silk Hosiery Co.; Ashton M. Tenney, of A. M. Tenney Associates; and Dr. A. C. Walker, Bell Telephone Laboratories. At the directors' meeting held later, officers were re-elected. They are: Dr. E. H. Killheffer, E. I. du Pont de Nemours & Co., president; Ernest N. Hood, Old Colony Mfg. Co., treasurer; and Charles H. Clark, secretary. Two new members were elected to the executive committee: Earl Constantine, president of the National Association of Hosiery Manufacturers, and Douglas G. Woolf, editor, TEXTILE WORLD.

Dr. Killheffer, in his presidential address, predicted that United States textile mills will be faced with increased competition from Japanese mills, and also that competition for the South American market for textile and other products will increase. In connection with his address, Dr. Killheffer discussed informally and showed samples of sewing thread and hosiery made of the new du Pont synthetic fiber, Nylon (See TEXTILE WORLD, October, page 55; November, page 75).

Discuss Warp-Sizing Study

In discussing the need for the warp sizing study, Harold M. Chase, of Riverside & Dan River Cotton Mills, stated that many researches have been conducted on starch, but comparatively little work has been done on the application of starch. Mr. Chase recommended that, if the investigation is carried out, all cooperators should be permitted to have photomicrographs and tests made of such samples of sized yarn as they may wish to submit to the research director. In addition, he asserted that wherever the work is conducted, the sizing and weaving equipment should be adjacent and so arranged that all conditions can be controlled exactly.

Warp-Sizing Practice

On the same subject Fred G. La Piana, of Stein, Hall & Co., said in part:

"In a recent survey of warp sizing practice in mills weaving wide sheetings the following facts were brought out: Some mills were using thick-boiling corn starch; some were using potato starch; some were modifying it slightly in cooking by the action of enzymes; some were using unmodified medium-grade tapioca flours; some were using high-grade tapioca flour, modifying it in cooking; some were using a combination of potato starch and sago flour, slightly modified. The cost of the size mixture varied anywhere from 3 to 5½c. to the gallon; the amount of size in the sized yarn from 9 to 14%; the weaving efficiency from 85 to 97%; the speed of the sizing machines from 20 to 36 yd. per min. All of these mills were using practically identical sizing machines.

"In analyzing the figures brought out by this survey, it was found that the high cost of size was not in close relation with the results obtained.

"In recommending a research of this type I would suggest that the study be confined to the following points: (1) study of the ingredients used in the size mixture; (2) study and determination of the best procedure in preparing the size mixture; and (3) study and determination of the best conditions under which the size mixture should be applied to the yarn."

Among others who offered valuable suggestions were Wright Bolton of Pacific Mills; Dr. J. B. Quig, of E. I. du Pont de Nemours Co. Inc.; Dr. W. E. Yelland, who conducted the research on rayon warp sizing; and Dr. H. De W. Smith, of A. M. Tenney Associates. Dr. W. E. Emley, of the National Bureau of Standards, presided at the conference.

Sane Operating Policies

Urged by Winget at North Carolina Convention

WITH orders and specifications apparently on the increase, indicating that the cotton-textile industry might be on an upward trend, it is imperative that the mills adopt constructive operating policies if the gains are to continue, declared Arthur K. Winget, president of the Cotton Manufacturers Association of North Carolina, addressing the group at its 32d annual convention held Nov. 3 and 4 at Pinehurst, N. C. He recommended in substance the following practices:

1. Two-shift operation. "If we adopt the sane policy of operating our plants a 40-hr. week and limiting ourselves to two shifts, the results will be beneficial; if we operate all the hours the law will permit, and a third shift, the results will be disastrous." Mr. Winget feels this so strongly that he urged the members to again read a speech on the subject in the "Yearbook for 1936" by O. Max Gardner who pointed out the hazards of the third shift and prophesied the slump which began in 1937.

2. Costs and differentials. To continue using cost differentials which have been in vogue for years past is the height of folly. The only remedy for this condition is an adequate and genuine cost sheet—not an estimate. It might include something to cover the stockholders' investments. Some years ago the Cotton-Textile Institute investigated 110 mills and found that 70% had no adequate cost system.

3. Sales contracts. "Sales contracts must be made more than mere options if the industry is ever to be restored to its old status as a fair investment for bankers, the public and the stockholders."

4. Fair Labor Standards Act. "We should exercise patience and cooperate with the Administrator in every way possible as I believe he will be absolutely fair and impartial in his dealings."

5. Processing tax. "I earnestly hope that each member of the association will begin now to vigorously oppose re-enactment of such a levy."

Speaking on "What Helps Business Helps You," S. Clay Williams, chairman of the board of R. J. Reynolds Tobacco Co., Winston-Salem, N. C., said that American business will be safe when the man in the street localizes his thinking and quits looking to Washington as "a vision of mythical hope."

Tax Trends were ably discussed by Richard E. Thigpen, tax counsellor, Charlotte, N. C. Analyzing the present situation, he said that conditions could be improved by better public relations on the subject and by election of public officials with the courage to control Government expenditures.

Called upon for extemporaneous remarks, Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, said that he does not believe the industry need worry too much about the administration of the Wage-Hours Law or the "two-price plan" of the Department of Agriculture, since the Government hopes to cooperate with industry constructively in both cases.

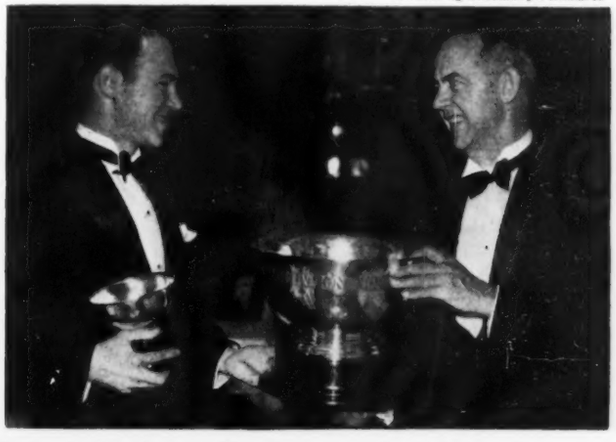
A symposium on the Wage and Hour Law was held at the executive session, followed by election of officers. J. Harvey White, president of Travora Mfg. Co., Graham, N. C., was elected president. A. G. Myers, of Gastonia, second vice-president, was made first vice-president, succeeded by R. C. Moore, of Rhodiss, N. C. Hunter Marshall, of Charlotte, and Carl R. Cunningham, of Atlanta, Ga., were reelected secretary and traffic manager, respectively. New members elected to the board of directors included J. E. Millis, H. M. Jones, F. C. Williams, R. A. Spaugh, Jr., J. R. Dover, Jr., and D. A. Long, Jr.

Committee chairmen were R. L. Harris, legislative, R. D. Hall, membership; F. J. Hayward, traffic, Bernard M. Cone, taxation, C. A. Cannon, cotton, Harvey W. Moore, finance, Thomas W. Webb, welfare and publicity, Marion W. Heiss, safety contest, Alex R. Howard, Stonewall Jackson Textile Unit, and A. H. Bahnson, nominating.

Association adopted resolution urging drastic changes in the New York and New Orleans cotton futures contract arrangements to create a higher futures market in relation to spots.

The golf tournament was won by John H. Rutledge, Jr., assistant secretary of China Grove (N. C.) Cotton Mills. J. D. Sandridge, E. I. du Pont de Nemours & Co., Charlotte, presided over the matches; presented prizes.

Photos by Hammer, Pinehurst



(Photo at left)—J. Harvey White, newly elected president of the Cotton Manufacturers Association of North Carolina, and A. K. Winget, of Albermarle, the retiring president (Photo at right)—John H. Rutledge, Jr., assistant secretary of China Grove Cotton Mills, receives the championship golf award from J. D. Sandridge, of E. I. du Pont de Nemours & Co., Charlotte, donated by Corn Products Refining Co.

Card Grinding Hints

Practical advice which will help the grinder to avoid some common mistakes

By A. K. LANDAU
Saco-Lowell Shops, Boston

Good grinding and good carding go hand-in-hand

ONE OF the chief causes of unsatisfactory card grinding is the lack of skill and training on the part of grinders. In the past, most card grinders have just picked up the trade. This condition, especially in the more progressive mills, is rapidly improving as a result of the many schools and classes devoted to vocational training sponsored by the mills. The proper training of men selected for their fitness to carry on this important and painstaking work will unquestionably be of great benefit to the mill. The following hints will help the experienced grinder to avoid some common mistakes and will prove useful also in training men to become card grinders.

Subjects of particular importance relating to card grinding are: (1) wear and care of feed-roll bearings, (2) setting of lap guides, (3) abuse of the lickerin, (4) setting the feed plate, (5) use of emery, (6) condition of the traverse grinder, (7) care and oiling of grinders, (8) setting flats, (9) faulty stripper settings, and (10) causes of felted flats. The first eight of these subjects are discussed in this article; the remainder will be considered in an early issue.

1. Feed-Roll Bearings. One of the most frequent sources of uneven work and bad carding is worn feed-roll bearings. If these bearings and the gudgeons of the feed roll are worn more than 1/32 in., the play within the bearings is sufficient to deprive the feed roll of that effective control over the lap, which is necessary to prevent the detachment of large pieces of the sheet. It can be readily seen that under these conditions the weighting applied to the feed roll to create this control is entirely inoperative, until the movement of the feed roll in a vertical direction is sufficient to cause the gudgeon to contact the top of the bearing (see Fig. 1). In the meantime, heavy pieces of the lap may be pulling through. The only satisfactory remedy is a restoration of the original fit of gudgeons and bearings, and more care regarding cleanliness and lubrication of the bearings, which, although housing a slow-moving shaft, are nevertheless under considerable pressure.

2. Lap Guides. Another essential detail in card setting, often overlooked by the grinder, is the accurate adjustment of the lap guides at the side of the feed plate. The writer has frequently seen these guides spread out so far that the selvage of the lap is just on the tip of the lickerin surface.

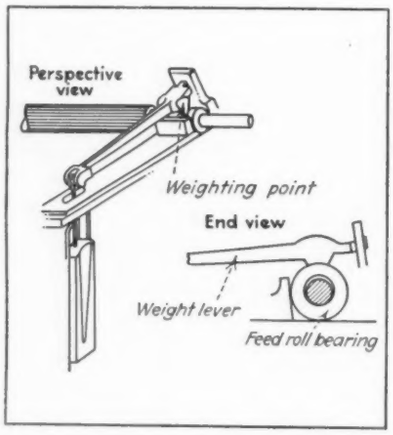


Fig. 1. Perspective and end views of feed-roll bearing and weighting system; end view of bearing shows wear which deprives feed roll of effective control over the lap

This is a dangerous condition, since fly and extra wide places in the lap cause an accumulation of cotton between the side of the lickerin cylinder and the housing. The accumulation of waste at this point will either cause slippage of the lickerin belt, or, if the belt is tight enough to prevent slippage, sufficient friction may be created to cause a disastrous fire. The guides should be set so that they operate on the lap selvage with a slight narrowing effect, that is, a normal 40-in. lap should occupy about 39⅝ in. on the nose of the feed plate. Also, the writer has seen these guides with so much sand and dirt around them that the underside of the lap is roughened and torn—a condition which causes numerous sliver irregularities and which quickly nullifies all the good work of the picker.

3. The Lickerin. When the lickerin is in good condition, all the fiber held by the teeth can be easily removed by hand. However, when the teeth are rough, bent, or hooked, the cotton is not as easy to take out. Therefore, rough teeth will cause some of the fiber to be carried around the lickerin a second or third time. Serious damage will result if this condition is allowed to continue.

Some overseers attempt to sharpen their lickerins by holding a file, brick, or other abrasive surface against the working edge. While this procedure may apparently produce a keen edge, it causes a total change in the contour of the wire. Even though the sharpened teeth may bite into the lap more freely, it will be noticed how they hold the cotton, instead of delivering it to the cylinder. Also, one will notice an increase in the neps and lumps in the

web, and, by removing the door at the waste compartments, will notice an increase in the droppings. If the overseer who attempts in this way to save the comparatively nominal expense of reclothing a damaged lickerin could visualize the damage he is doing to the yarn, to the weave-room efficiency, and to the management, he would refrain from such practice. When the lickerin needs to be overhauled, the only sensible and efficient way to do this is to send it to a shop which has special equipment for doing this job.

4. Feed Plate. There seems to be a tendency for carders to set the feed plate as closely as possible. Some carders have said that so long as the feed plate does not touch the lickerin, the fiber will be detached without damage. However, when the setting is too close—and this depends upon the weight of the lap—there is a tendency for the small mass of cotton to be compressed between the path of the lickerin teeth and the profile of the feed plate. Thus, we have as a result two unfavorable effects: a heating effect as the teeth go through the fringes, and a bad tearing effect similar to that produced when a fine comb is pulled through a heavy mass of hair.

5. Use of Emery. One of the most common mistakes made by the card grinder is to use emery fillet which has outlived its usefulness. Emery fillet is one of the most inexpensive items bought for the operation of the mill, yet the function it performs is one of the most important. The whole success of the card-grinding operation, and thus indirectly the quality of the yarn, depends upon the creation and preservation of the keen carding surface of the wire. This surface is produced by the cutting action of the sharp emery grains with their angular crystalline structure.

When the emery is new, its shape allows it to work down between he wires, removing an infinitesimal amount of stock from the top and side as it traverses back and forth across the face of the cylinder or doffer. When usage has caused these fine emery grains to become rounded and smooth, they merely slide across the surface, producing a polishing effect, instead of a cutting one. Grinding the cylinder, doffer, or flats with emery in this condition not only takes longer to get some semblance of a sharp surface, but in time will ruin the wire entirely. It is recommended that emery be changed after every 60 hr. of active service. This applies to the drum grinder, as well as to the traverse grinders.

6. Traverse Grinder. Have you ever seen the card grinder go over his work with a distressed and puzzled look as he tried to get a satisfactory setting between the cylinder and flats, a setting which would gage the same at the edge and in the center, and make a miserable failure? The unsuspected cause of this trouble is the bad condition of the traverse grinder, which on account of faulty bearings, poor care, or abuse, has cut into the cylinder clothing deeper in the middle than it has on the sides.

From the manner in which the traverse grinder operates, any unbalanced condition, either in the hollow shaft or within the wheel itself, will cause the wheel to cut heavier in the center than on the sides. For this reason, traverse grinders must be inspected frequently and faults promptly corrected. Otherwise serious damage can result.

7. Oiling Grinders. Both drum and traverse grinders, as manufactured today, are precision tools and should be cared for, handled, and treated as such. In many mills, they are abused, seldom cleaned, left on the floor in some corner when not in use; and in time they show the bad results of this neglect. Since the ground surface takes its shape directly from the surface doing the grinding, any deformation produced in the card-grinding equipment will be exactly reproduced on the card. Therefore the drum and traverse grinders should be handled with care and, when not in use, should be kept in durable and substantial stands built for this purpose. Once a week the grinders should be cleaned by a man who understands their construction. Great care should be insisted upon regarding the removal of every trace of emery dust from the traverse screw on the wheel grinders, since, if it is allowed to accumulate, the abrasive action of this dust and oil will soon ruin the accuracy of the screw. About once a month the gears within the head which houses the traversing motion should be washed out with gasoline. The grinders should never be oiled while on the card. The oiling should be done before the grinder is placed on the card and the surplus oil removed, so that it will not be thrown on the card clothing by centrifugal force. Oil on clothing is an indication of gross carelessness, and is the forerunner of an expensive replacement.

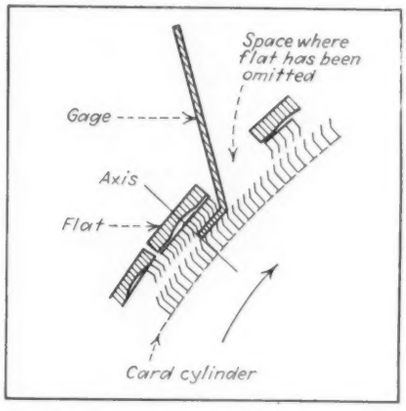


Fig. 2. In setting flats with the standard leaf gage, the gaging point is at the tangent point of the flat to the cylinder at the axis of its adjusting point. Do not insert the gage too far

8. Setting Flats. Many cards have been damaged, and the clothing faced, by use of improper methods in setting flats. In general, flats should be set as closely as conditions will permit; the closer they are set, the less neps, husks, and other gross impurities will be found in the web. Many mills are unable to take full advantage of the cleaning action of the flats because of unstable floors, unusual vibrations, or other mechanical defects.

In setting flats, the standard leaf gage should be used and not the ear or the makeshift tin strips which are used in some mills.

One flat on each side of the flat being used as a setting point should be removed (see Fig. 2). Then the adjusting screws should be turned until the pressure on the gage indicates that the setting is tight. Finally, the locknuts should be partially tightened and the adjusting screw reversed, so that the final adjustment is upwards,

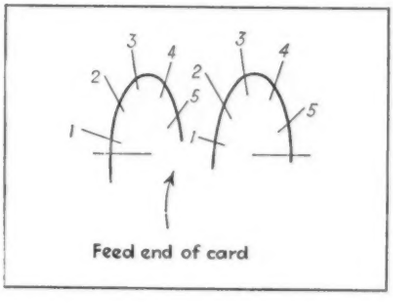


Fig. 3. Diagram illustrating the proper sequence to be followed in setting flats

away from the cylinder. The setting screw should always be reversed in making this final adjustment. Manipulating the flat-adjusting screws in this manner has the tendency to take all the lost motion out of the bend-adjusting mechanism, which, in turn, prevents any contact between the rapidly revolving cylinder and the slower moving flats. Failure to do this has raised many a blister on the cylinder, and ruined hundreds of flats. Flats should always be set in the proper sequence (see Fig. 3).

How's Your Waste Percentage?

Application of control system decreases amount and increases value of weaving-mill waste

By JOSEPH M. HASTINGS

IN MOST mills today the control of waste is under the guiding hand of the superintendent. The actual handling of the waste is done in the waste house which, very likely, is under the jurisdiction of the overseer of a nearby department. The first step in this suggested plan is to select a good waste man who will have complete charge of the problem. He must have a good working knowledge of the mechanics of manufacturing in each process, as well as a large amount of imagination and ingenuity. He should preferably be a member of the planning or efficiency staff of the plant.

When he begins his new assignment, the waste man should first of all familiarize himself with the varieties of waste; how they are made; where they are made; and the best methods of disposal, either through re-use or through selling. He should by personal observation study the problem, department by department or process by process. The result of his study will, of course, be a report to the management regarding the present practices and whether they should be changed.

To illustrate this more clearly, we may study a hypothetical case, the handling of which will illustrate the proper procedure in any department of a mill. Let us take the weaving department of a hundred-loom mill engaged in the manufacture of woolens and worsteds in great variety. The weaving department is understood to include the processes of drawing-in warps, weaving cloth, and stripping filling bobbins.

It will probably be found that the following types of waste are made: in drawing-in, threads and rags; in weaving, threads, rags, and sweepings; in stripping, threads.

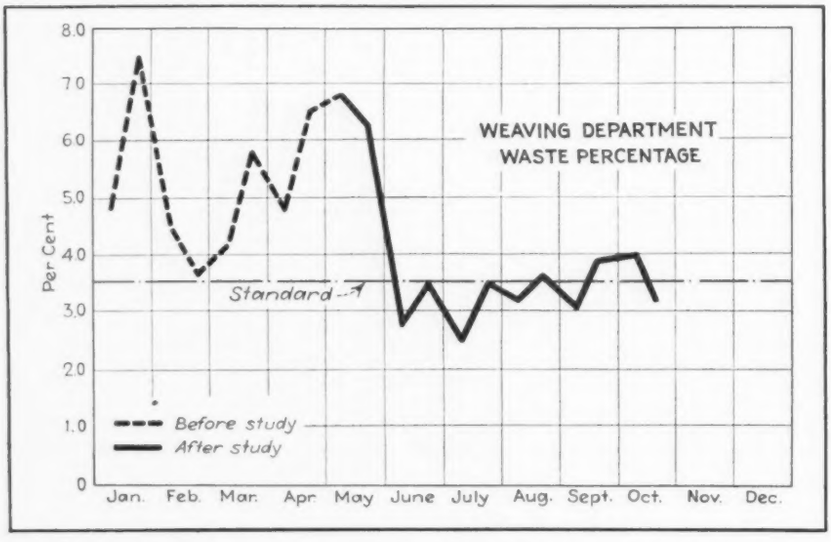


Fig. 1. Graph shows weaving department waste percentage, both before and after adoption of efficient waste-control system

There are several manufacturing sources of the various classes of waste.

In drawing-in, thread waste is composed of trimmings made when the ends of a warp are evened up preparatory to drawing-in, and ends of yarn cleaned from dirty harnesses; rag waste consists of small pieces of cloth cleaned from the harnesses.

In weaving, thread waste consists of the last remains from the loom beams at the end of a warp, and trimmings from the warp-tying machines. Rag waste contains headings—strips of cloth the full width of the goods and up to 12 in. long—which are cut off at each cut mark and used to check the correctness of the weave; first headings or thrums—strips of cloth, usually with the ends unwoven—which are the result of starting a new warp; damaged cloth; and wipers or oily rags. Waste termed sweepings will include small pieces of yarn made when piecing ends and repairing filling breaks; these are full of drop wires, size dust, garbage, paper, loom parts, harness straps, old fuses, pieces of false reeds, and broken heddles.

Stripping waste consists of yarn bunches stripped from filling bobbins; the amount left on the bobbins will, of course, vary according to the setting of the fingers on the automatic looms and the size of the bunch.

Economical Handling

Economical handling of these various types of waste requires a definite system. The following general recommendations will be found of assistance:

(1) Since at the time of processing the various kinds of material are separate, it is desirable that every effort should be made not to mix waste which will subsequently have to be resorted.

(2) All wastes should be properly sorted in the department in which they originate. The waste house should act merely as a place for checking, bagging, and shipping.

(3) Threads and rags which are white and tinted can be combined, as they command the same price.

(4) Thread wastes containing rayon should be placed in cotton bags, rather than burlap. This is because the rayon will stick to the burlap and may later contaminate other grades of waste. Also, it will be found helpful to use red tickets to distinguish bags containing rayon waste.

(5) All waste improperly sorted should be returned to its point of origin for resorting.

(6) Each bag of waste should be identified by a ticket containing the following information: point of origin, destination, description of contents, date, shipper's initials.

(7) A weekly report of waste produced should be sent to the waste department by each department of the mill.

(8) All sorts of threads and rags made in the various departments

(Continued on page 64)

Proficiency Record

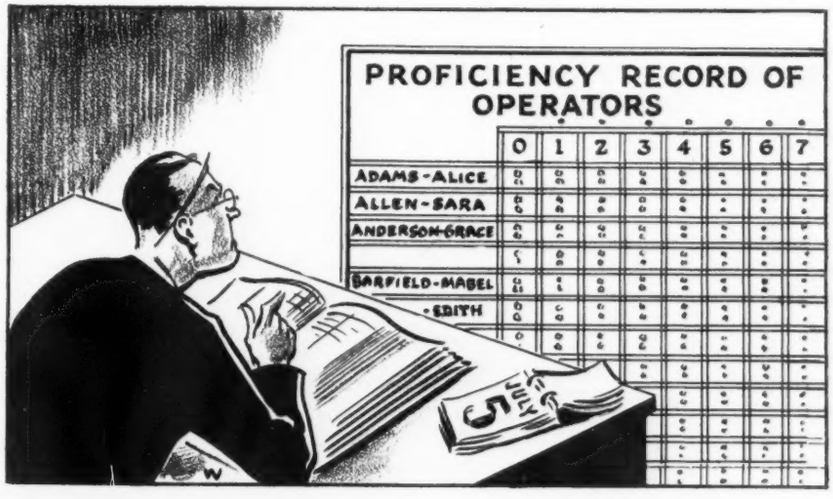
Showing ability of each operator to handle various jobs assists overseer in planning work

By J. FREDERICK CAHILL

Robert Halliday was in charge of the sewing department of a large plant manufacturing knit underwear. He was showing excellent results in both employee relationships and quality and quantity of work turned out. This year the Fourth of July fell on a Monday, allowing a three days' recess from work. Upon returning to work Tuesday morning, Mr. Halliday found that a number of his employees—among them several of his best operators—had failed to appear at their regular locations. He, himself, had spent the holiday in a somewhat strenuous manner and, as a consequence, was not in the best of condition to cope with what amounted, almost, to an emergency. He remembered that four or five of the missing employees were engaged on operations of a rush nature, and that a half-day's delay would be bad, while a whole day's delay was out of the question. Attempting to call to mind the abilities of the various people in his department who were present, he remembered one or two operators who were experienced in the operations necessary to complete rush orders (and forgot others), only to find that they could not be spared from their present jobs, nor could substitutes for them be thought of at once. Mr. Halliday was at a loss. . . .

IN A SMALL department with a small number of employees and a narrow range of operations, it is not difficult for a foreman to remember just what job each operator is capable of doing and how well he is capable of doing that job. However, in a large department with a large number of employees and a wide range of operations, this cannot be done without some effective aid to memory. Such an aid is a proficiency record which can be used to advantage in any large department of any type of mill where operations are numerous and varied.

A proficiency record is a board which will show at a glance just what each operator is capable of doing, how well he or she is capable of doing it, and just which operation each is engaged in at the time of observation. The size of the board depends entirely upon the number of operators and the number of operations performed in the department. A space about 3 in. wide should extend across the top of the board, and a column about 2½ in. wide should occupy the left-hand side of the board below the 3-in. space. The main body of the board should be painted black and divided into rectangular spaces ¾ in. wide by ⅝ in. high including the dividing lines, which should be less than ⅛ in. wide and of a conspicuous color. On the vertical center-line of the ¾-in. spaces, two holes should be drilled; these should be about ⅛ in. in diameter and 5/16 in. apart. The 2½-in. column at the left-hand side of the board is divided into spaces ⅝ in. wide, and these spaces are formed by thin sheet-metal clips with edges turned over to permit them to hold narrow cards 2½ in. long by 9/16 in. wide. These cards are for the names of the operators, and their numbers if desired. When the cards are inserted in the clips in their proper order, they constitute a roll of the entire personnel of the department.



Mr. Halliday would have had no great problem on July 5 if he had had proficiency records of his employees

Across the top of the spaced section of the board, each vertical column contains a number, beginning with zero at the left and continuing consecutively through the total number of operations performed in the department. The clips containing the operators' names are so lined that they coincide with the rows of spaces containing holes. In the upper holes of the spaces in the numbered columns, opposite the operator's name, various colored pins are placed to indicate the operations in which the operator is experienced. The color of the pin indicates the degree of experience or the proficiency of the operator in that operation. In the lower hole, in the space in the vertical column headed by the number of the operation on which the operator is working, a white pin is placed. The white pins scattered over the board show at a glance just what each operator is doing. About ½ in. above the number at the head of each vertical column, is drilled a hole of large enough diameter for the stem of a celluloid golf tee to be inserted. This hole is for a ball-pin, which is made by cementing a small marble in the cup of the tee. An operation indicated by a ball-pin is considered to be a rush operation. On the wall at the left of the board, and in a loose-leaf book on the foreman's desk should be the following typewritten legend:

Gold pin indicates first-class operator.

Green pin indicates moderate experience but safe.

Red pin indicates beginner with slight experience.

White pin indicates present location of operator.

Ball-pin at head of column indicates rush operation.

The pins can be made of any de-

sired material, such as wood, celluloid, or metal; should have rounded ends; and should be about ¾ in. long. However, the white pins should have conspicuous heads so as to show up distinctly on the board.

The kind of machine and the type of operation that each operation number indicates are also recorded in the loose-leaf book under the heading "Operations." On the following pages, one style to a page, all essential information pertaining to each style of garment or article that passes through the department should be recorded. Such information, in the case of knitted undergarments, includes style number, description or kind of article, materials, weight per dozen, operations by number and sequence of performance, and first-class production quota on each operation expressed in terms of dozens per hour.

Among the production or shop orders on file at the foreman's desk, the ones stamped "Rush" are of first importance. If he has a proficiency record of his department set up and in operation, he can check up on the required operations and the number of operators available to perform these operations. He can make this check-up from the loose-leaf book on his desk and from the board, and when the material for these orders reaches his department, he can place a ball-pin in the hole over the number of each of the required operations to show that, for the time being, those operations are rush operations. If the foreman has such a record available, the fact that a number of his operators may be absent should not bother him greatly, and he should not have to waste any time in deciding what to do under such circumstances.

In referring to his board, the foreman locates the first name on his list in the name column at the left of the board, and a glance along the row to the right shows a white pin below a gold pin in operation 9. Another glance at the top of the column shows a ball-pin—a gold-pin operator on a rush operation for whom a substitute must be found at once. He takes out the white pin and places it in the zero column beside the operator's name, which shows that, that particular operator is out. Next he locates the nearest gold pin in column 9 without a white pin below it and locates the white pin in that row in column 6; this is also a rush operation, and he cannot change that operator. A green pin in column 9 shows a white pin in column 5; this is not a rush operation, and the substitution is made. Other substitutions are made, some of them requiring the taking of operators from rush operations and replacing them with operators from operations that are not of a rush nature. It is all easily accomplished because of the fact that the whole plan of the department is directly before the overseer.

The operators, themselves, soon learn to read the board and seem to prize the status of "gold pin operator" to an even greater extent than the greater earnings that such a status entails. Some of them will strive to attain a gold pin status entirely across the board.

Under ordinary conditions, a new man taking over the job of supervising a large department must learn the names of the operators, what operations they are capable of performing, and how well they are capable of performing these operations. Aside from that, he must familiarize himself with style numbers and what they represent, what operations are required on each style, and the description and materials of each style. A board such as that described makes it much easier for a new foreman to familiarize himself with the department. The process of becoming personally acquainted with the personnel of the department would follow as the natural course of events, rather than being his starting point in getting a grasp of his duties.

* * *

Mr. Halliday's problem on July 5 would have been a lot less difficult if he had had a proficiency record showing the degree of skill with which each employee was able to carry out the various operations in the department.

How's Your Waste Percentage?

(*Continued from page 62*)

should correspond to those employed at the waste house.

Specific recommendations for each of the departments concerned may also prove helpful. In drawing-in, all operatives should be required to sort their own waste. Each bag or sort of waste should have a number, and this number should be placed beside the style number on a list posted by the boxes. Each warp will have a ticket with this style number on it; when harnesses are taken out of the looms, the stub of the loom ticket may go along with them, thus making it possible readily to identify waste of any type. A floor man can tie off and ticket waste bags as they become full.

In the weave shed proper, sweepings should be saved. The regular weave-room clean-up men can make the rounds each shift with a box and a sorting board, and the weavers should bring their sweepings to the board free of all foreign matter. Collectors should not accept any waste unless it is as specified.

A small cotton bag may be attached to each loom to hold the pieces of yarn which result from the weaver's piecing up. This waste may be collected at the same time as the sweepings, and put in a bag hung on the sweepings box.

It will also be found advantageous if loomfixers have at their benches a box for old fuses, nuts, bolts, etc. Also, no new loom parts should be given out at the stock room unless the broken parts are turned in, to be thrown on the junk pile. Old pickers, lug straps, and harness straps should be saved, as they have a small sale value.

Instead of using goods in process for aprons when starting up new warps, have some cheap cotton aprons made by sewing spinning-band tapes at each end of two-yard pieces. These will last indefinitely and will be much easier to use. Warps which are to be followed into the loom by styles which differ from them and, as a result, cannot be tied in, should have a cotton apron put on the loom beam in the slashing. This will enable the weaver to weave right up to the drop wires.

Headings should be cut down to the absolute minimum which the harness raisers require to check the correctness of the weave. All headings should be sorted and bagged in the harness raiser's office. This can be accomplished by having a box by the examining table with the necessary bags hung in it. As each heading is examined, it can immediately be put into its proper bag. On all-wool fabrics, the contrasting color in the headings should be made with an all-wool yarn, thus keeping up the grade of the rag. At cut marks, cloth should be torn, not cut; this will insure a true edge.

As regards strippings, sorting tables should be arranged in a hollow square near the stripping frames. If waste bags are hung from brackets on the table so that waste sorters can stand or sit in one spot and sort right into the bags, work will be facilitated.

Adoption of the above outlined suggestions for handling weaving department waste should result in substantial economies. The waste man will of course follow the working of the system carefully, tabulate the results at regular intervals, and compare them with results under the previous system. The use of a graph such as is shown in Fig. 1 will give him a clear picture of the progressive results he is achieving; and provides an excellent way for the management to see at a glance the current profile of waste production.

Costing Fiber Blends

System developed for woolen mills applicable to other branches of the industry

BY BERNARD HELLER

A SYSTEM by which the actual cost of blends used in manufacturing each fabric in a mill's line can readily be ascertained at convenient intervals, and compared with the estimated costs on which the selling price of the fabric was predicated, will prove advantageous in practically any mill. It will enable management definitely to determine whether costs are running higher than expected; if they are, it will indicate at which points remedial measures should be applied.

To illustrate the various steps by which such a system is put into operation, we will discuss a blended woolen yarn, although there is no reason why a similar system could not be put in use in other branches of the industry as well.

When a new fabric is styled, a cost estimate or budget should be prepared. This should include data on the percentage of each stock in the blend; labor, overhead, and any other costs; also the selling price, which is calculated from these data. A suggested form for recording these facts is shown in Fig. 1.

When it is desired to begin production of the fabric, a blend card—as shown in Fig. 2—is prepared. This card indicates the percentage, weight, color, lot, and quality of each stock in the blend, and later will have added cost per pound of each of the stocks, the cost per pound of the complete blend, and yield and waste percentages. It is interesting to note that the nubs which are a feature of the fabric in this illustration are not considered with the main stocks in the blend when the percentage composition is calculated, but are added over and above the theoretical "100%" figure.

FABRIC COST ESTIMATE

Date 7/3/38 ... SEASON Fall 1938 Selling Price $1.20
STYLE NO. 1800 Date Price Set 7/3/38
FABRIC Tweed

BLEND

WARP PER CENT	STOCK	COST PER LB.		FILLING PER CENT	STOCK	COST PER LB.	
15	¼ Bld. Wool	.85	.1275	15	¼ Bld. Wool	.85	.1275
85	Shoddy	.16	.1360	85	Dk. Softs	.10	.0850
10	Nubs	.85	.0850	10	Nubs	.85	.0850
	Blend cost, per lb.		.3485		Blend cost, per lb.		.2975
85	Yield cost, per lb.		.4100	85	Yield cost, per lb.		.3500

LABOR COSTS DETAILED ..... OVERHEAD COSTS .....

Fig. 1

BLEND CARD

BLEND NO. 1800 FOR Warp DATE 7/10/38
STYLE NO. 1808 RUN 1½ LOT NO. 520
YARN NO. 1808 TWIST 6 t. p. i. LB. 1,000

PER CENT	STOCK	COLOR	LOT NO.	LB.	COST PER LB.
15	¼ Bld. Wool	Black B748	175	150	
85	Shoddy	Brown B752	224	850	
10	Nubs	White	118	100	

Blend cost, per lb. .....
Yield ..... Per Cent Waste ..... Per Cent

Fig. 2

DYE CARD

STOCK ¼ Bld. Wool ... DATE 7/11/38
LOT NO. 175 ORDER NO. B-748
COLOR Black LB. TO DYEHOUSE 500
LB. FROM DYEHOUSE 500

STOCK COST, PER LB. .....
DYE & CHEM. COST, PER LB. .....
LABOR COST, PER LB. .....
TOTAL COST, PER LB. .....

DYES AND CHEMICALS USED

ITEM	LB. USED	COST PER LB.	COST PER LOT
Ammonia	20		
Acetic	25		
Glauber Salt	100		
Sulphuric	10		
Chrome	10		
Chrome Black T	40		
		TOTAL COST	

Fig. 3

Forms used in costing woolen blends

Occasionally, it is necessary to vary stocks and percentages slightly from lot to lot. Such changes must be closely watched as each results in a different cost. It should be a rule that any variation from the standard blend be noted on the blend card.

If the blend card calls for colored stock, the dyehouse is given instructions to dye whatever colors, qualities, and quantities are required. The dyer prepares a dye card similar to that shown in Fig. 3, noting on it all pertinent data.

Pricing Cards

When the stock passes from dyehouse and picker room, and begins its progress through the various other departments of the mill, all cards are sent to the main office, where prices are entered. The dye cards are used to calculate the total cost of stock, dyes, chemicals, and dyehouse labor.

In entering of the cost per pound of each stock in the blend on the blend cards, natural stocks are calculated on the basis of the delivered price of the raw wool, and colored stocks on the basis of the data contained on dye cards. Each color number on a blend card must have a corresponding dye order number.

Finally, the average cost per pound of each lot is calculated and entered on the blend card. It is quite possible that the several blend cards of a single style may all have different average prices, due to variance in cost of stocks used, and in dyes, chemicals, and labor required on the various batches. Yield and waste percentage figures are entered on each blend card after each blend is spun.

Recapitulation

Monthly, or at periods convenient to the mill's accounting system, all blend cards of each style are grouped together and an average stock cost computed. This figure, when dovetailed with labor and overhead costs during the same period, indicates the total unit cost of the blend in each fabric manufactured during the period.

Reference to the original cost estimate cards makes it easy to determine of whether actual costs are being kept in line with estimated costs, and, thus, whether the manufacturing cost is in line with the selling price.

Surface-Active Chemicals

Operation	Time Element in Wetting-Out	Removal of Impurities	Additions to Fiber
Degumming Silk Fabrics	In the continuous type of boil-off machine the dry goods may enter the liquor at the rate of 60 yd. per min., or more. As soon as the dry fabric becomes wet, the dynamic energy which has been stored up during throwing is released. In the tub method, where flat folds of goods are entered into a boil-off bath, the energy is released at even a faster rate.	In the boil-off bath, the sericine, tint, and soaking oils are removed; but at no time should the action be so severe that fibers are broken or chafed.	Nothing is added to the silk.
Printing	Cloth speeds vary according to the type of fabric, method of printing, etc. To be of value in printing pastes the surface-active chemical must permit the printing machine to operate at a higher speed or to secure a better penetration of the color at the normal speed of the machine.	As a rule, nothing is removed from the fabric in this process. However in the case of discharge printing on pre-dyed fabrics, color is removed at desired places in the pattern.	The color and printing paste are added to the fabric.
Sanforizing and Other Preshrinking Processes for Cotton Gray Goods	In many cases it is desirable to preshrink the goods and at the same time to retain the warp-sizing materials. Frequently sulphonated oil or another softener is applied in this operation. Use of a surface-active chemical may permit the speed to be increased from, say, 30 to 70 yd. per min.	It is desirable that nothing be removed from the cloth; but any uneven distribution of size can be corrected.	Shrinking is accomplished by moistening the goods and drying them without tension. In addition, various types of finishes are desired, depending on the purpose for which the cloth is to be used. The finishing agents become the additions to the cloth.
Wetting-Out and Desizing Cotton-Rayon Piece Goods	The goods are usually wet-out or desized on a continuous machine. The cloth speed may range from 60 to well over 100 yd. per min.	The operation removes motes from the cotton, size from the cotton and rayon, and oils from the rayon. Presence of rayon or acetate prevents use of strong alkalis.	Nothing of a permanent nature is added in this operation. The surface-active chemical and sometimes enzymes are added to convert starch, glue, and gelatine to soluble, easily removed materials, which are washed out before dyeing and finishing.
Soaping Yarns and Fabrics After Printing or Dyeing	Textiles which have been dyed or printed with vat colors, sulphur colors, etc., are usually soaped to oxidize the color and to increase the fastness of the dye to washing and rubbing. The time required varies greatly with different classes of dyes and different types of equipment. Use of one of the newer surface-active chemicals should reduce the time required.	Loose, suspended color and printing gums, etc., are removed from the goods.	Nothing is added to the yarn or fabric.
Rinsing Dyed Cotton Before Spinning	Rinsing time is usually 30 min. or more, depending on type of equipment. Use of a surface-active chemical may reduce this by 50%.	Any materials which impair the spinning qualities of the yarn should be removed; but no dye should be removed, except that which is loosely attached to the fibers.	Nothing is added to the fiber.

Data on Specific Applications (continued)

BY GEORGE A. THOMAS

Alteration of Physical State	Alteration of Chemical State	Operating Conditions
The degree of crepe produced is largely dependent on the rate at which the energy is released. Thus the more rapidly the goods are wet out and the boil-off liquor penetrates the fabric, the deeper will be the pebble or ripple.	Removal of the gum, tint, and soaking oil constitutes a chemical change, but is subordinate to the physical change due to creping.	An alkaline bath in excess of pH 9.6 is employed. The bath must be at or near the boil for sufficient time to remove the sericine, tint, etc. In most continuous machines the bath ratio is high; therefore there is danger of not using enough of the surface-active chemical to obtain the maximum effect sought in the limited time the goods are in contact with the solution. In the tub method the bath ratio is generally about 30 to 1. Surface-active chemicals of the newer types have not yet been able completely to replace soaps and alkalis for degumming, but can be used to advantage as assistants to give a good crepe and to prevent crow's feet and other defects.
The goods take on color at the desired points; in special types of printing, such as metallic printing and flock printing, metals or fibers are added to the fabric.	In general, no chemical change in the cloth takes place when it is printed. In some cases a chemical change occurs in the dyes used.	The pH value of the paste is dependent on the types of dyes used in making up the paste. For example, vat colors are printed with a reduced alkaline bath, while direct colors are printed with a neutral paste. The surface-active agent should add smoothness to the paste and prevent undue wear of the engraving by the doctor blade. No definite figures can be given for bath ratio, as the volume of printing paste required to cover a certain quantity of cloth varies with different fabrics.
The alterations are of a physical nature—generally some weight is added, and a different handle is imparted to the goods. The goods are contracted in length and width so that they will not shrink more than ¾ of 1% (or other specified percentage) upon washing.	There is no chemical change in the fiber.	The surface-active chemical may be of such a nature that it will of itself act as a wetting agent and finishing agent or it may be added to soluble oils or other softeners to increase their wetting-out properties. To prevent bleeding of colors, the bath should be neutral. The goods are run through a box or trough containing the finishing solutions; therefore the bath ratio as it affects the use of the surface-active chemical is of no consideration. In many cases the finish is applied hot. The surface-active chemicals should have good wetting-out and softening properties, but need not have good detergent or emulsifying properties.
The physical changes are those brought about by the removal of the impurities.	No chemical change should take place in the fibers. The surface-active chemical should remove or assist in removing the impurities without causing saponification of acetate fibers or chemical damage to the rayon.	If the surface-active chemical is used in conjunction with an enzyme to increase the wetting-out speed, it must not stop or retard the action of the enzyme; most enzymes have a lethal point of about 150° F., and an optimum working temperature somewhat below this. Malt enzymes are usually applied at pH 4 to 5; fungus enzymes, at pH 5.4; pancreatic enzymes at pH 7. The bath usually contains 3 to 5% of the desizing agent, and 1¼ lb. of solution is used for 1 lb. of cloth.
Removal of printing gums, etc., renders the goods softer and more pliable. Colors are made brighter and clearer.	No chemical change should take place in the fibers. Frequently there is a chemical change in the dye—usually an oxidization of the color.	The operation is usually carried out at or near the boil. If soap and soda ash are employed, the bath may be as alkaline as pH 10; in this case the surface-active chemical must be compatible with soap and effective in alkaline solutions. If one of the new surface-active chemicals is used alone, the bath may be neutral. In either case, there should be a good suds, the detergent should rinse freely. In the presence of hard water, the surface-active chemical should form soluble lime salts or prevent adherence to the fiber of insoluble lime salts. The bath ratio depends on the type of equipment employed; frequently continuous machines are used, in which case bath ratio is unimportant.
There is no alteration of the physical state of the fiber.	No chemical change in the fiber takes place.	Rinsing is carried out in a cold or slightly warmed bath. Bath ratios vary from 12 to 1 to 50 to 1. If sulphonated oils, soluble oils, etc., are used as assistants in dyeing cotton raw stock, and only hard water is available, deposits may be left on the fiber which will interfere with spinning. The surface-active chemical should have good detergent and emulsifying properties, so that these impurities will be removed.

Braider Adjustment

Three methods for obtaining stitch variations in the product

BY EDWIN J. GIBBONS

ORDINARILY the fixing or adjustment of the common braiding machine is not a particularly intricate process. There are, however, some fundamentals that must be observed, and some precautions that should be considered.

Whenever there has been a change in the take-up rolls, whether metal or sandpaper-covered rolls are employed, the altered rolls should always be securely fastened to the shaft. This also applies after alteration of change gears; but in such cases a further precaution should be taken—the worm should be adjusted along the upright shaft to a point where it will properly engage the worm gear that operates the change gears. If the worm is improperly set, it may cause not only excessive wear in both worm and worm gear and a jerky movement of the take-up shaft, but in extreme cases may result in the incorporation of an excessive number of stitches in the braid. This, in turn, would result in an improper texture in the material. Further, in a flat braid the width would be affected, and in a round braid the diameter would be changed.

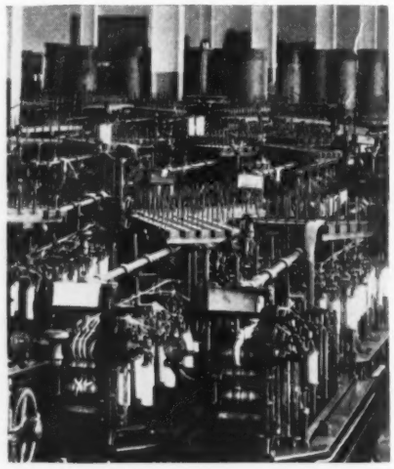
Changing Change Gears

There are three common methods by which the number of stitches per inch may be altered. These are: by changing one or both of the change gears; by substituting a take-up roll of a different diameter; or by changing both the take-up roll and the change gears. Substituting different change gears is the simplest of these methods but, if the range of change gears available will not produce the desired effect, it may be necessary to substitute a larger- or smaller-diameter take-up roll.

To determine the number of stitches per inch that may be expected from a particular combination of gears, or to determine the gears to be used to effect a given number of stitches per inch, it is first necessary to calculate a constant for the stitches per inch which would be produced by the particular take-up roll being used and with top and bottom gears having the same number of teeth. This constant can be found by multiplying the present number of stitches per inch by the number of teeth in the bottom gear and dividing by the number of teeth in the top gear. Thus, if a machine is making 28 stitches per in., with a 72 top gear and a 36 bottom gear, the equation would be $28 \times 36 \div 72$, giving a constant of 14. If this constant is multiplied by the number of teeth in any top gear, and the product divided by the number of teeth in any bottom gear, the result will be the number of stitches per inch which that particular gear combination will give. In formula form: Constant $\times$ any top gear $\div$ any bottom gear $=$ stitches per inch.

The various terms of the equation can also be rearranged to determine any other unknown. For instance: Constant $\times$ any top gear $\div$ stitches per inch $=$ appropriate bottom gear. And: Any bottom gear $\times$ stitches per inch $\div$ constant $=$ the appropriate top gear. Or: Stitches per inch $\div$ constant $=$ ratio of top gear to bottom gear. (This figure should be carried out to 3 or 4 decimal places.) Multiplying this ratio by the proposed bottom gear will give the approximate top gear; or dividing the proposed top gear by the ratio will give the approximate bottom gear.

When it is necessary to select a new or different combination of change gears to produce the same result as a known combination of gears, it is necessary only to preserve in the new set of gears the same ratio as is in the known combination. Of course, the same take-up roll should be used in both combinations, and the number of teeth in the gears should be sufficient that they will mesh.



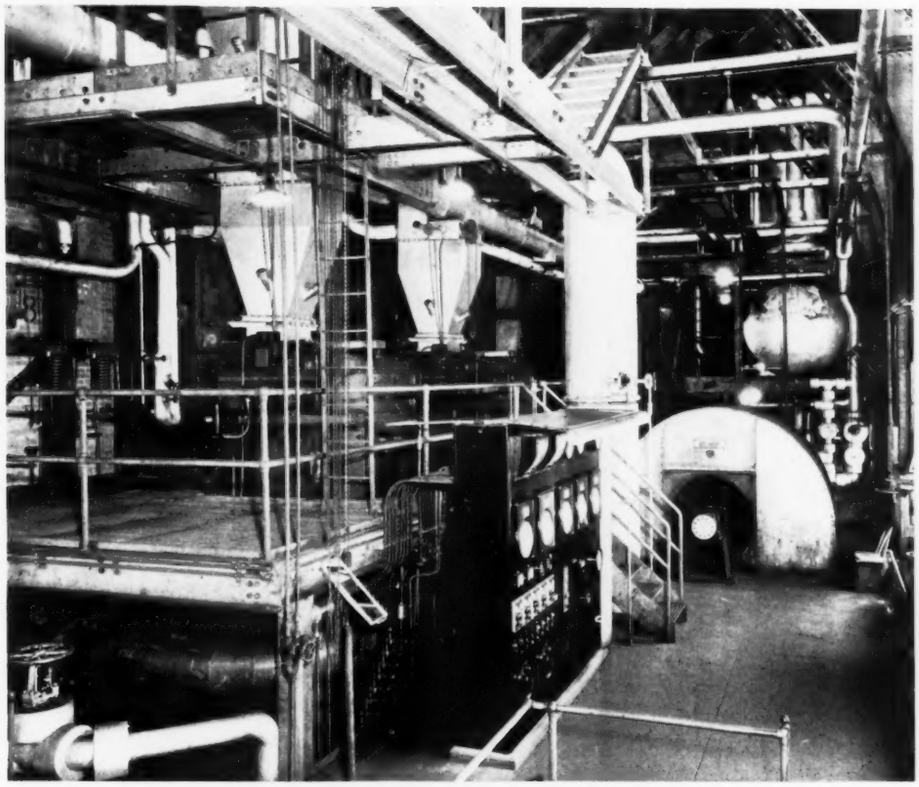
Stitches per inch can be varied by change of take-up roll, change gears, or both

Changing Take-up Roll

Alteration in the number of stitches per inch due to a change in take-up-roll diameter will be in inverse proportion to the diameter of the take-up roll in use at the moment and that which it is proposed to substitute. For instance, if a 1¼-in. take-up roll is producing 27½ stitches per in., the number which would be produced by a 2-in. take-up roll would be calculated as follows: $2 : 1\frac{1}{4} :: 27\frac{1}{2} : x$. Or, 17+.

If a choice is permissible in the diameter of the take-up roll, it is advisable, especially in the case of heavier braids (such as suspender looping, umbrella-handle cords, and heavy round button-hole braids or frogs), always to use the largest available roll that may be employed in combination with the selected change gears. There is no objection to the use of the larger take-up rolls for finer braids, but they are particularly desirable in the case of heavy braids, since the smaller take-up rolls (⅞ in. to 1⅛ in., etc.) do not present enough drawing surface for the heavier fabrics and consequently are likely to permit slippage.

When the number of stitches per inch in a braid is increased, it occasionally happens that the braiding point will drop below what it formerly was, sometimes to the extent that the yarn will become entangled with the studs of the carriers. The remedy for this is to increase the size of the bottom weights, or of the top weights, or of both top and bottom weights. The purpose, of course, is to increase tension on the yarn and thus raise the braiding point. In the case of racer carriers, where coil springs take the place of weights, the substitution of heavier springs will have the same effect. However, it must be remembered that increasing tension on the yarn will result not only in a more tightly stitched fabric, but in a braid of reduced diameter or width, as the case may be. Incidentally, uniform sizes of weights or spring tensions should always be used, except when making special effects.



View in boiler house showing new 650-lb. boiler and panel board with automatic combustion-control system

Topping Unit

First installation in textile industry made recently in Arlington Mills power plant

IF THE president of a textile mill were also a graduate engineer, one would expect that in the midst of his many other duties and responsibilities he would find time to keep posted on advances in power and steam generation and would insist that the power plant be kept up-to-date at all times. That is exactly the situation at Arlington Mills, Lawrence, Mass. Franklin W. Hobbs, president of the company, a graduate of Massachusetts Institute of Technology, has always retained a keen interest in engineering matters; the power plant at Arlington is not only one of the largest, if not the largest, in the textile industry, but for many years has had the reputation of being one of the most efficient.

Since the power plant was built about 30 years ago, it has undergone many changes, either for the purpose of increasing its capacity or to reduce power and steam costs. The most recent move has been the installation, at the cost of some $400,000, of a so-called "topping" plant, the first unit of this type to be installed by a textile mill. This consists essentially of a high-pressure boiler and a non-condensing turbine which exhausts into the high-pressure mains of the old boilers.

In order to understand the reasons for the present installation, it is necessary to trace briefly the previous steps in the program of continuous modernization of the power plant. Built originally in 1906, the plant was equipped with eight 150-lb. Manning type boilers, with Roney stokers, and some of the earliest General Electric turbines. Two years later this installation was virtually duplicated by the addition of eight more Manning type boilers with Taylor stokers.

Modernization Begins

Beginning in 1915 and 1916 the original boilers were gradually replaced with sixteen Babcock & Wilcox long-drum, water-tube boilers operated at 195-lb. pressure, and superheaters to give a temperature of 490 to 500°F. Some of the Taylor stokers were rebuilt, and Riley stokers were put on the other boilers. At this time a 7,500-kw. condensing turbine was installed. In order to use some of the heat from the condenser water, a condensing water system was installed with a discharge tunnel arranged to take some of the warm discharge into process. Later the load on the plant increased, and it was found necessary to put sprays on the pond to use in warm weather.

At about the same time (1916) the chimneys were replaced with a brick chimney 300 ft. high. This, incidentally, was the highest chimney in New England. Later the height was increased to 330 ft.

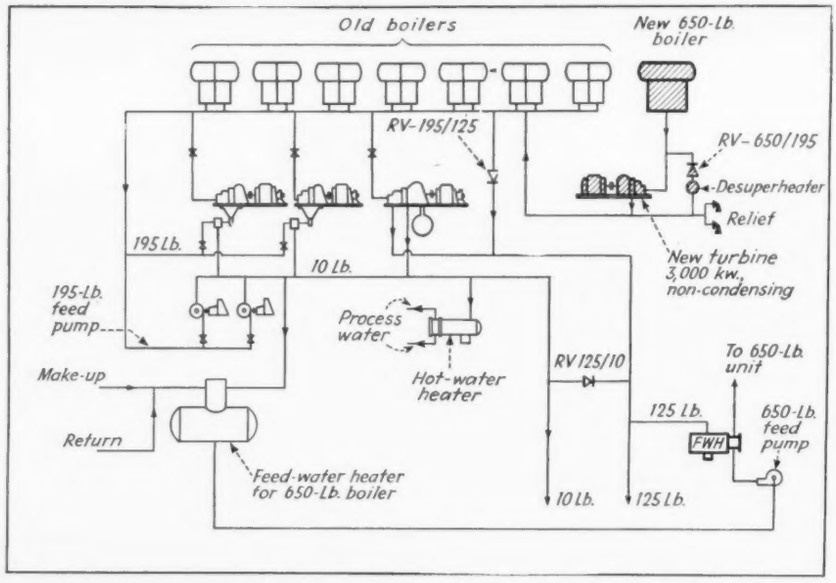
Another 7,500-kw. machine, practically a duplicate of the first, was installed in 1920.

About eight years ago the mill

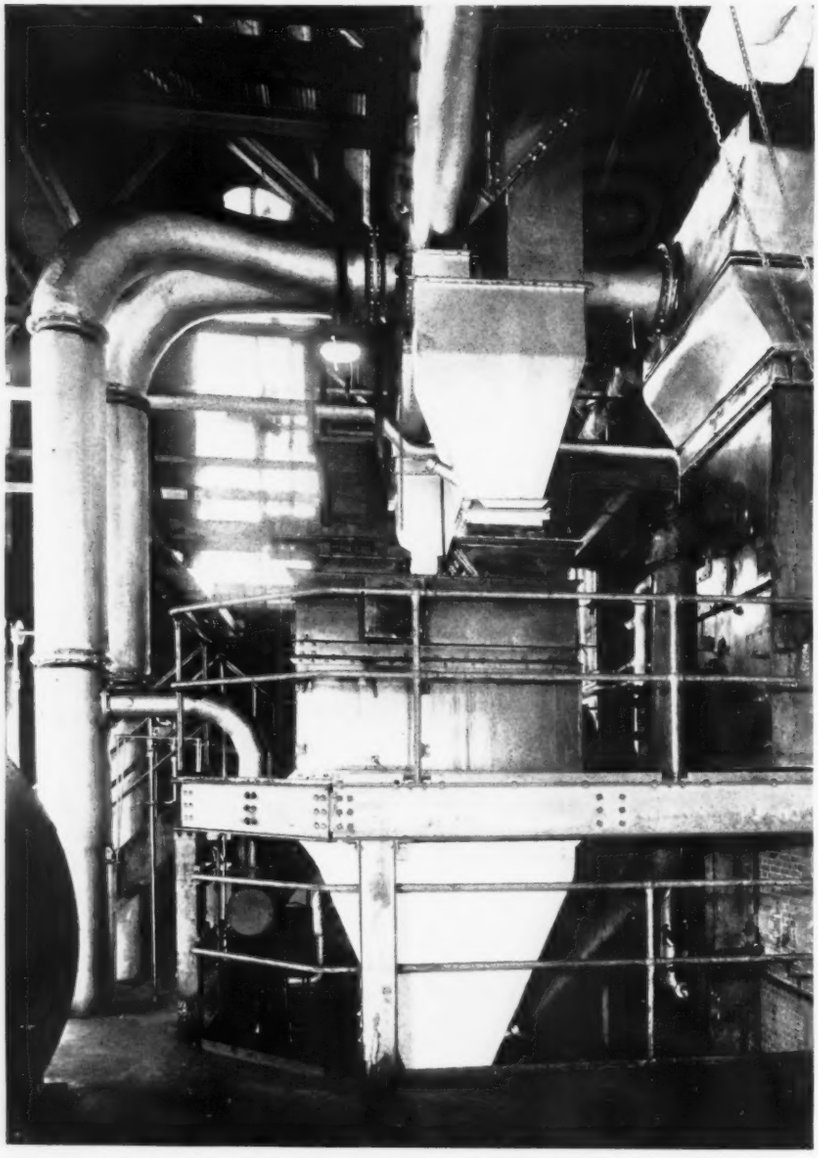
started to change over from 40- to 60-cycle operation. To effect this change, one of the old vertical machines which had been in since 1906 was replaced with a double-extraction condensing machine and a frequency changer was installed. This unit operated at 195-lb. pressure and 500°F., but was of a design that could be renozzled for 400-lb. pressure. Steam was bled from this machine at 125-lb. pressure for some mill uses, and at 10-lb. pressure for other mill uses and for heating hot water. Electrically operated automatic combustion-control equipment was installed in the boiler house at this time.

Detailed Survey Made

In 1936 Mr. Hobbs commissioned Chas. T. Main, Inc., to make a detailed study of the plant to determine what, if any, further economies could be effected. Complete and detailed plant



Schematic layout of power plant at Arlington Mills after installation of "topping" unit



Coal leaving the bunkers is weighed on automatic scales and passes through pulverizers before it is fed to the furnace

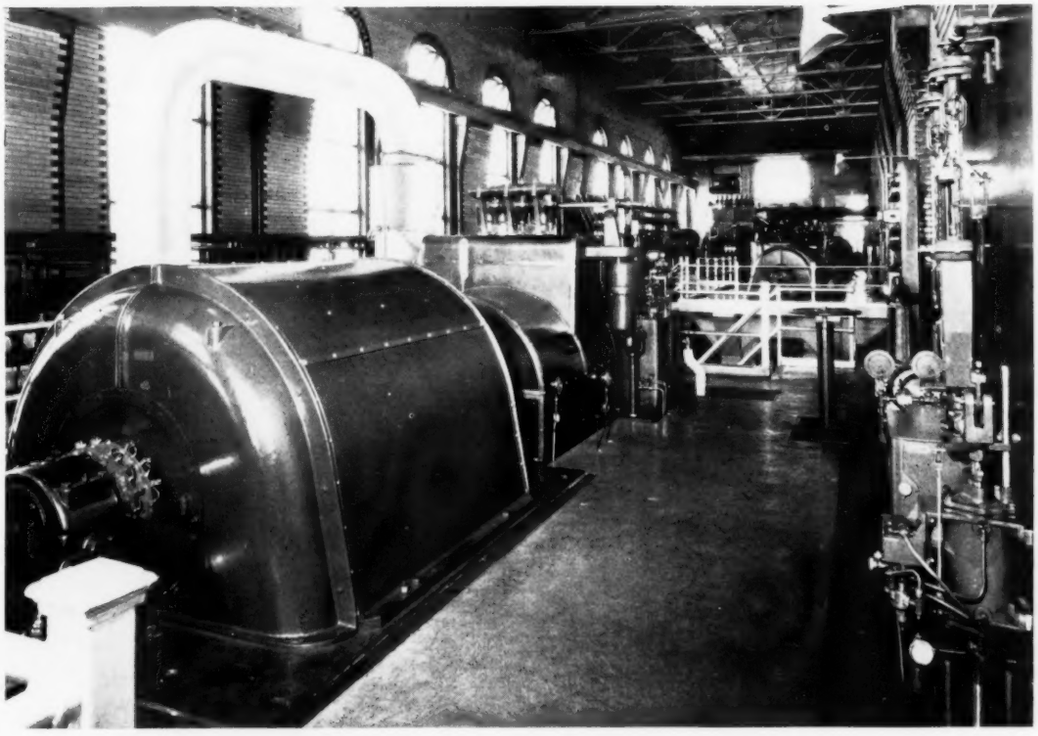
records, which had been kept over a period of years, made possible an intelligent analysis of the problem. The survey showed the possibility of reducing the heat lost in condensing water, and, after comparing the economic results of five different schemes of doing this, it was found that over a 12-mos. period of time the cumulative loss of fuel in condensing water would be the least with a "topping" plant consisting of a 3,000-kw., 60-cycle, non-condensing turbine and 650-lb. boiler. In addition, the new boiler would result in further fuel economies. Installation of such a unit was started in 1937, and the plant was put into operation in February 1938. Chas. T. Main, Inc., was in complete charge of the design, engineering, and installation.

The present layout of the power plant is shown schematically in accompanying sketch. It will be noted that in the boiler room two of the old boilers were replaced by one 650-lb. boiler. This is a B & W Type F boiler equipped with a Bailey Meter Co. air-operated automatic combustion-control system.

New Boiler and Turbine

The boiler is similar to the integral-furnace boiler installed by Sanford Mills, and described in the April, 1938, issue of TEXTILE WORLD; the Arlington Mills installation, however, has over twice the capacity, (125,000 lb. of steam per hour), is designed to operate at a considerably higher pressure (650-lb.), is fired by pulverized coal, rather than oil, and is equipped with an air preheater and economizer.

Coal leaving the bunkers is weighed on two automatic scales and passes through two B & W pulverizers before it is fed to the furnace. The rate of



New 3,000-kw., 600-volt, 60-cycle, non-condensing turbine exhausts into the high-pressure mains of the old boilers, thus acting as a reducing valve and generating a large amount of power with only a comparatively small lowering of the total heat in the original steam

feed is automatically controlled. Each burner is fitted with an oil ignition system. Ashes are removed from the ash pit by a United Conveyor "Dry-ash" removal system to a silo adjacent to the boiler house. The boiler setting was built by Frank E. Ross Co.

Boiler Feed Water

Boiler feed water, taken from the Spicket River is passed through a sand filter to a Hoppes deaerator where it is heated to 240°F., and then goes to a storage tank. Next the feed water is raised to a temperature of about 320°F. in an American Locomotive Co. "Alco" closed heater. On its way to the boiler, the water then passes through the economizer. The temperature leaving the economizer averages around 340 to 345°F. There are two Ingersoll-Rand Cameron feed-water pumps—one driven by a GE motor; the other, by a Terry turbine. Boiler water is conditioned under the Hall system.

The draft system consists of a Sturtevant forced-draft, inlet-vane-control fan driven by a GE motor, and a Buffalo Forge Co. induced-draft fan with a hydraulic coupling manufactured by American Blower Co. and a GE motor.

Combustion Control

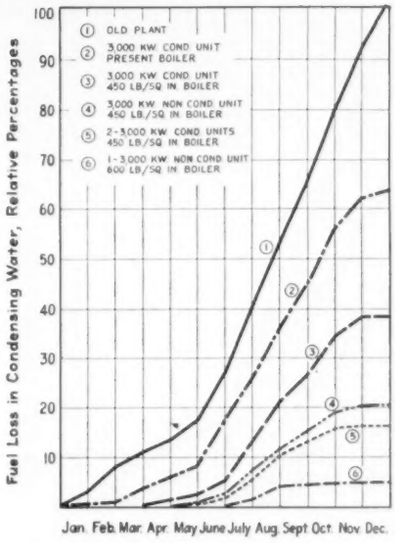
A complete Bailey automatic combustion-control system maintains correct steam pressure, fuel supply, induced draft, forced draft, etc. Indicating and recording instruments show steam flow from the boiler, steam pressure, temperature of air and gases; temperature of superheater steam, and other conditions. In addition, there are automatic alarms which give instant warning in the event of failure of more important parts of the boiler-house equipment to function properly at any time.

Steam from the boiler goes to the new General Electric 3,000-kw., 600-volt, 60-cycle, non-condensing turbine which exhausts at 195-lb. pressure into the high-pressure mains of the old boilers. Thus, it acts as a reducing valve, and generates a large amount of power with only a comparatively small lowering of the total heat in the original steam. The turbine is of sufficient size to take the maximum rated output of the boiler, and is equipped with GE and Taylor Instrument Cos. controls.

In parallel with the turbine is a reducing valve and desuperheater equipment furnished by Republic Flow Meters Co. and consisting of a Smoot reducing valve and desuperheater with a Taylor Fulscope control. With this arrangement, it is possible at times, when the whole capacity of the turbine is not used, to bypass the new turbine and still operate the new boiler.

Results Obtained

Results obtained from the installation of the topping plant have been gratifying. It permitted more of the load to be changed from 40-cycle operation, so that now more than half the load is generated at 60 cycle. Records kept over a period of several months indicate that at average load the new high-pressure boiler has an efficiency of 85 to 86%, as compared with 73% for the old boilers, and gives a 14% saving in fuel plus the ability to burn lower-cost coal. Further, the loss of heat in condensing water has now been practicaliy eliminated.


Fuel Loss in Condensing Water, Relative Percentages
100
90
80
70
60
50
40
30
20
10
① OLD PLANT
② 3,000 KW COND. UNIT PRESENT BOILER
③ 3,000 KW COND. UNIT 450 LB./SQ. IN. BOILER
④ 3,000 KW. NON COND. UNIT 450 LB./SQ. IN. BOILER
⑤ 2-3,000 KW. COND. UNITS 450 LB./SQ. IN. BOILER
⑥ 1-3,000 KW. NON COND. UNIT 600 LB./SQ. IN. BOILER
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Estimated cumulative loss of fuel in condensing water at Arlington Mills under various methods investigated installation of topping unit

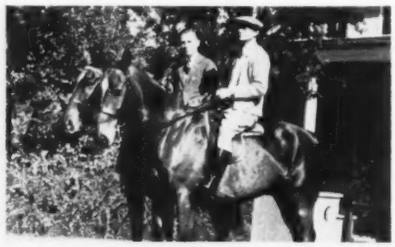
As a result of these economies, it is estimated that the installation will pay for itself in about four years. It is interesting to note finally that the last three steps in the modernization program have been effected without any changes in the building space; the original walls and roof are still intact, and the original coal bunker is still in use.

Carolina Yarn Assn. Is Host

To 350 members and guests

NINTH Annual Golf Tournament of the Carolina Yarn Association was held at Pinehurst, N. C., Oct. 28 and 29, attended by 350 members and guests. In addition to golf and skeet, several guests took advantage of the splendid mounts provided by the Pinehurst Stables for horseback rides. The meeting closed with a banquet Saturday evening presided over by S. L. Diggle, president, at which time 65 prizes were presented. The other officers of the association are: W. T. Cheatham, vice-president; E. J. Holbrook, treasurer; J. R. Sherrill, secretary. Committee chairmen in charge of the meeting were: H. M. Bailey, Jr., invitations; J. H. Mason, skeet; Penn Wilson, prizes; W. T. Cheatham, golf; R. W. Weaver, entertainment.

Sam Lewis, Atwood Machine Co., Stonington, Conn.; Geo. W. Henderson, Commercial Factors Corp., New York; R. W. Smith, Jr., "Cotton," Atlanta, Ga.; Robt. Baker, Brinton Co., Greensboro, N. C.



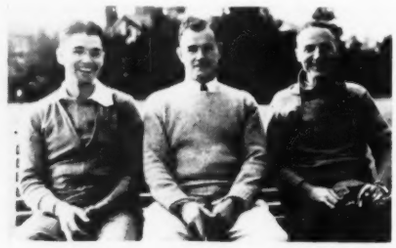
Leonard F. Smith, Tubize Chatillon Corp., New York; Frank Scull, Tubize Chatillon Corp., New York.

H. Wick Rose, American Viscose Corp., New York; J. Virgil Garrett, Adams Millis Corp., High Point, N. C.; F. R. Hoadley, Atwood Machine Co.; W. N. Robbins, J. P. Stevens Co., New York.

1. Joe Mason, Industrial Rayon Corp., Greensboro, N. C.; Geo. Schautz, Jr., (shooting) Grove Silk Co., Scranton, Pa. 2. Wm. H. Newton, Primrose Tapestry Co., Rome, Ga.; C. H. Swindell, Archer Hosiery Mills, Columbus, Ga. 3. H. M. Bailey, Jr., American Bemberg Corp., Greensboro, N. C.; Ray Weaver, Textile Machine Works, Greensboro, N. C. 4. Geo. Boys, China Grove Cotton Mills, China Grove, N. C.; Carl J. Beaver, China Grove Cotton Mills.

W. L. Holt, May Hosiery Mill, Kernersville, N. C.; W. H. May, May Hosiery Mill, Burlington, N. C.; L. E. Tucker, May Hosiery Mill, Burlington, N. C.

Frank Coker, Rayon Division, E. I. du Pont de Nemours, Charlotte, N. C.



Joe Ballentine, Smith Drum Co., Anderson, S. C.; J. E. McDougall, Smith Drum Co., Charlotte, N. C.; Junius Smith, "Textile Bulletin," Charlotte.

R. H. Moore, Oscar Heineman Corp., Chicago; R. M. Gutekunst, Hellwig Silk Dye Co., Philadelphia; Jas. Gray, Gray Hosiery Mill, Hendersonville, N. C.; N. P. Murphy, Oscar Heineman Corp., Greensboro, N. C.

Snelson Chesney, John P. Maguire & Co., New York; R. C. Anderson, Charlotte, N. C.; L. C. Parker, Charlotte, N. C.; Junius Smith, Charlotte, N. C.; G. D. Garrett, High Point, N. C.

R. A. Spooner, Barnhardt Bros., Charlotte, N. C.; Guy C. Tanner, Friedberger Aaron Mfg. Co., Philadelphia; L. F. Smith, Tubize Chatillon Corp., New York; Joe Morton, Morton Chemical Co. Inc., Greensboro, N. C.

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Recent Air View of Barberton Plant, THE COLUMBIA ALKALI CORPORATION

Through The Centuries With Alkalies...

TWENTIETH CENTURY

IN this concluding chapter of a series tracing the part which alkalies have played through the ages in the development of many industries, it seems fitting to picture the present Barberton plant of THE COLUMBIA ALKALI CORPORATION as an example of current achievement in alkali production. Here modern science has made possible the manufacture of Soda Ash, Caustic Soda, Sodium Bicarbonate, Modified Sodas, Liquid Chlorine and Calcium Chloride in quantities and quality undreamed of a few decades ago.

COLUMBIA

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CAUSTIC SODA
SODIUM BICARBONATE
MODIFIED SODAS
LIQUID CHLORINE
CALCIUM CHLORIDE

THE COLUMBIA ALKALI CORPORATION

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MINNEAPOLIS

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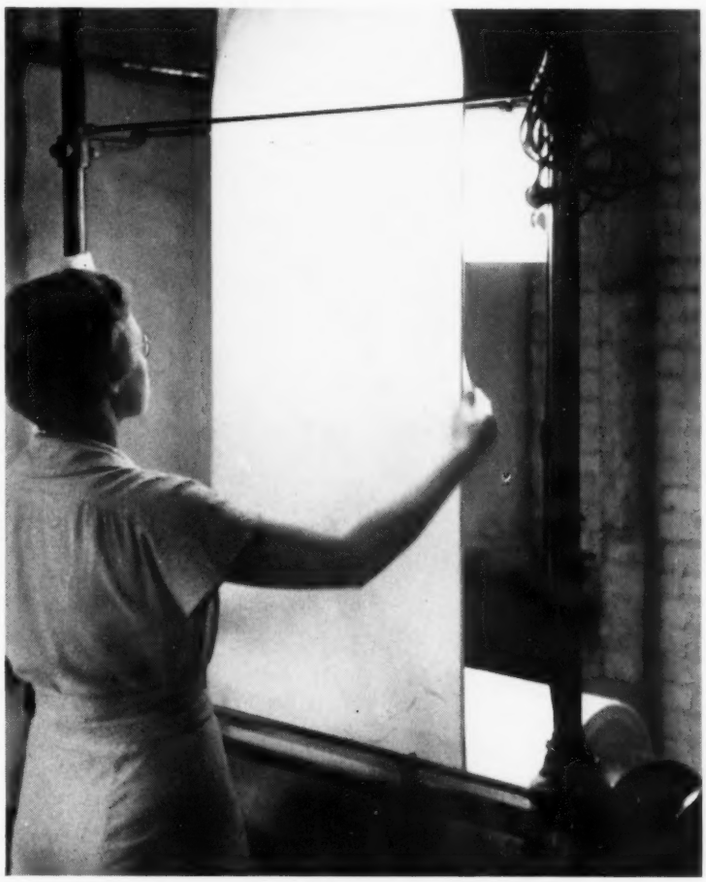
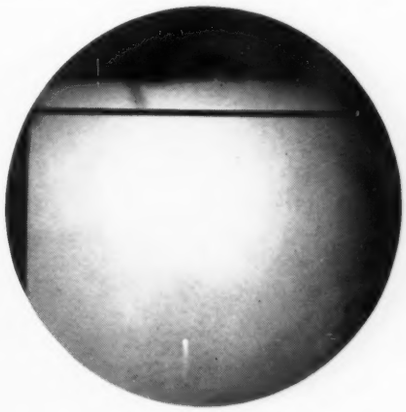
CINCINNATI
PHILADELPHIA

"Rayon inspection is easier, more accurate with new G-E Fluorescent MAZDA Lamps"

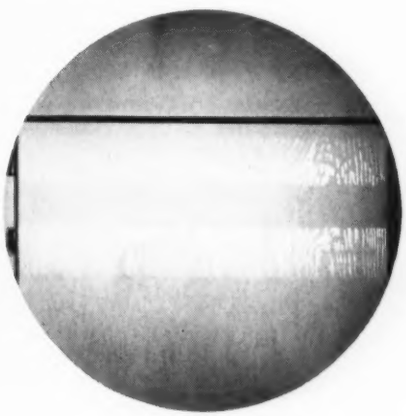
reports Globe Knitting Works, Grand Rapids, Michigan

In inspecting rayon fabric, this girl sees the rayon rather than the light. Two 20 watt green fluorescent lamps in cylindrical reflectors throw a uniform diffuse light through the fabric.





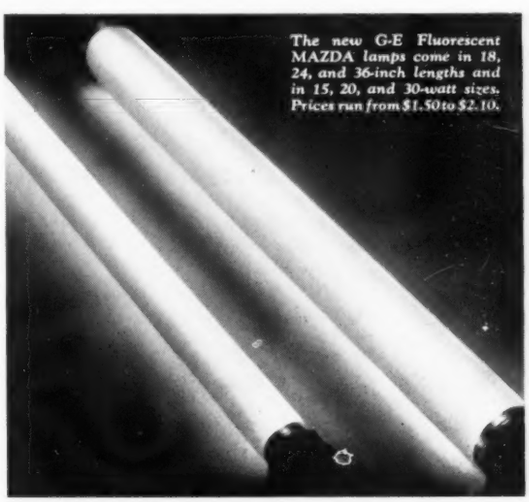
The illustration above shows how an incandescent lamp gives intense but spotty illumination. The photo below shows how clearly fluorescent lamps bring out the weave of the fabric.



THE Globe Knitting Works of Grand Rapids, Mich., uses the new General Electric Fluorescent MAZDA lamps for inspecting rayon fabric for runs, holes, stripbacks, slugs or mispresses. They report this work is done more easily, more accurately and with less eyestrain than when incandescent lamps were used.

These new Fluorescent MAZDA lamps offer wide uses in textile mills especially for inspection and other fine work where diffuse light that practically eliminates shadows is needed. Also for low cost "indoor daylight" for color discrimination work.

For further information about these new lamps that give several times more light than ordinary incandescent lamps of the same wattage and color . . . and that are 50% cooler for the same amount of light . . . write to General Electric Co., Dept. 166-T, Nela Park, Cleveland, Ohio.



GENERAL ELECTRIC

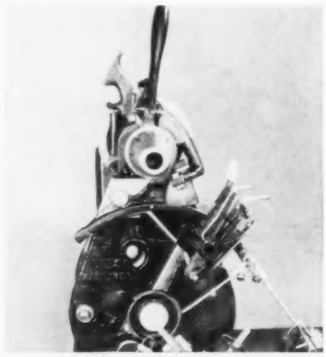
THIS IS NUMBER 12 OF A SERIES ON

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

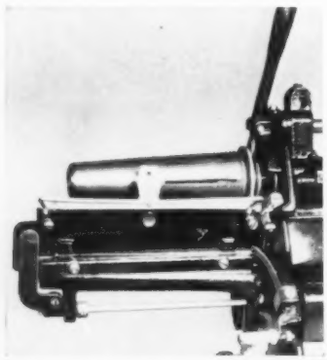
SETTING AND CARE OF DOG (No. 50 Winder)

The purpose of the Dog is to act as a brace, preventing the thread guide from pressing against the winding package, at the same time allowing the Traverse Frame to move freely in the opposite direction as the package diameter increases.



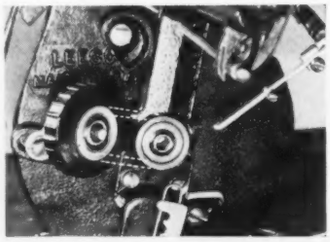
Setting

The flat steel spring on the Dog Lever will hold the Dog in the grooved Segment with very little tension. Excess tension causes the Dog to drag in the Segment, not only increasing the wear on both parts, but also adding pressure against the package which is not under control of the Differential Pressure Mechanism. Pressure should only be added by means of adjustments on the Pressure Lever, for it then can be released as the package increases in diameter.



The Dog Collar (A) and Dog Lever (B) should be set with enough float in order that the Dog will be self-aligning.

Dogs are checked against gauges for accuracy when manufactured. Both sides of the Dog should contact the walls of the groove in the Segment. Altering the Dog involves the possibility of twisting it out of line with the Segment.



Sometimes Dogs are mistakenly adjusted to overcome a condition caused by a worn Stopping Wheel. This Wheel revolves with the cam shaft and bears against the end of the cam shaft bushing. A worn Wheel will eventually touch the Traverse Frame, causing it to bind. Obviously this should be corrected by replacing the Wheel, not by interfering with the setting of the Dog.

Cleaning

It is not necessary to lubricate either the Dog or Segment. Wiping with oily waste is sufficient to keep the parts clean, removing any sticky accumulations and leaving a thin film of oil to prevent rust.

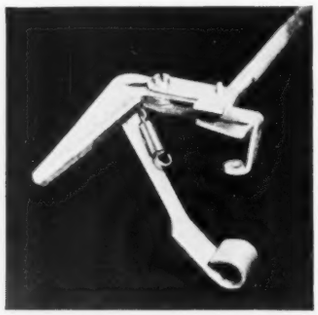
Steel Locking Points; No Filing

Locking points on latest design of Segment and Brake Lever are made of steel, reducing wear and eliminating the necessity of filing.

On old-style No. 50 Winders, the locking points are part of the casting. When worn, the castings are filed to provide a new shoulder; this has the effect of throwing the arc of the Segment out of line with the radius of the Dog. Also, by lowering the outer end of the Segment, it reduces the clearance between the Breakage Lever and Stopping Wheel and sometimes causes the spindle to knock off unnecessarily.

HEAVY COP FORMER HOLDER (No. 90 Winder)

Redesigning the assembly for the Cop Former Holder has made it possible to provide a more substantial construction and prevent accidental bending. This improvement in design has been made without any increase in selling price, but it will be necessary to change the complete assembly since individual parts cannot be applied to old mechanisms.



The new Cop Former is made perfectly flat from double-thick sheet steel. The new Holder is knurled on the under side against which the Cop Former rests. The new Link is not hardened; and it is intended that the combination of soft Link and knurled surface of the Cop Former Holder will eliminate any slippage of the Link. A washer raises the Cop Former sufficiently above the Holder to clear the traverse bar.

EXPENSIVE REPLACEMENTS CAUSED BY INEXPENSIVE PARTS

In the design of a winding machine, there are a number of inexpensive parts which appear to be of relatively minor importance themselves, yet must operate satisfactorily in order to protect more expensive parts from damage and undue wear.

A breakage lever, for example, on a drum winder is a comparatively simple part, and is inexpensively replaced. However, failure to replace it promptly when worn means that the yarn will not traverse properly, and the yarn will then cut a groove in the more expensive slub catcher. For lack of attention to this inexpensive part, an expense many times greater can be incurred.

On Leesona Winders, even the least expensive parts are carefully designed with a view to preventing unnecessary replacement expense. Each part in the winder is vital to its efficient operation, and it is important to keep each part correct and as designed.

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THE OVERSEERS' CORNER

OVERSEERS' MEETINGS

A Pete and Bill Discussion

"ANOTHER doggone overseers' conference!" expostulated Bill, half to himself, as he and Pete headed for the superintendent's office. "Every week it's the same thing—sometimes twice a week. No wonder we never get any work done!"

"Why, I like conferences," said Pete. "There's nothing like getting together with the other fellows and thrashing out a lot of problems, with the superintendent as referee."

"I don't mind conferences when we have something to talk about, but two-thirds of the time we don't. It's just a lot of hot air and it's time lost from the work of my department."

"My feeling in the matter, Bill, is that we should have more and better conferences. For example, once a month we could have a dinner meeting and have some fun along with it. Maybe an outside speaker would be invited. Or perhaps, on occasions, we could invite the ladies and make a real party of it."

Bill thought a moment. "No matter what you say, two-thirds of the time of any conference is wasted, and when you start dressing them up with parties it's worse. Like taking castor oil in orange juice."

"You can't really cooperate," returned Pete, "unless you know how and what the other fellow thinks." And he opened his mouth to say more on the subject, but closed it with a snap when Bill said one word out of the corner of his mouth. The word was: "Nuts."

What kind of conferences should be held for overseers, and how often?

Letters From Readers

Wants Discussion of Organization

Editor, Overseers' Corner:

I have been very much interested in the topics brought up for discussion in "The Corner" and have wondered how many overseers look upon the planning of their work and the lay-out of their departments as phases of organization; how many of them look upon and consider their departments as minor organizations within the main organization which constitutes the entire plant. All manufacturing plants are organized along somewhat similar general lines, in that they all take in raw material, and, by few or many processes, convert it into a finished product. And of course the finished product of one plant frequently becomes the raw material for another. Similarly, in a plant having few or many departments the finished product of one department becomes the raw material for other departments, thus making each department a minor manufacturing plant in itself. And whether or not its activities are conducted well or ill depends upon whether the department is well or poorly organized. Let's have some discussion of the subject!

—J. F. CAHILL
(Atlanta, Ga.)

Purchasing Agent Should Work with Superintendent

("Who Should Do the Buying?" Pete & Bill, September, 1938)

Editor, Overseers' Corner:

It seems to me that major equipment or materials purchasing should be done by both purchasing agent and plant superintendent, the P.A. to look up and keep open reliable sources of supply and do the financial juggling sometimes necessary. When important commitments come up he can 'phone over for the Super and together they can go over the list of sources and weed out the goats from the sheep, narrowing down the list to a select group of suppliers. Then the P.A. can say to the Super, "Well, Charley, you know more about this stuff than I; you will have to use it or abuse it so go ahead and buy the one you think will prove most satisfactory." This plan works out first rate. The P.A. has had all the fun of digging up the sellers and seeing the boys with the "grips," yet the Super does the actual buying. Reversion of buying to the front office has been due I believe to the lengthy gab fests in the shop, and in some cases to downright bribery on the part of salesmen or sales executives. One equipment firm comes to mind that added in a commission for the Superintendent whenever he bought anything. On the other hand when the P.A. does all the purchasing, there is considerable "grass-hopper buying" with resulting fluctuation in quality which the Superintendent naturally dislikes. "Two heads in purchasing are better than one," still holds true.

JAMES MURPHY
(Buffalo, N. Y.)

Employee Records Good "Engineering Practice"

("Classifying Ability"—*June*, 1938)

Editor, Overseers' Corner:

It is good engineering practice to tabulate the life history of each picker, card or loom, showing the number and kind of repairs made. This record is valuable in making corrections in machine design and as a guide for future machine purchases. The worthwhileness of such records is obvious. It should be the same way with labor. The money paid for productive labor on a given machine over its life span in the majority of cases exceeds the original cost of the machine itself. Because a machine is more tangible than hours of labor it gets more attention in all respects.

Executives and foremen who can accurately review the net value of each unit of labor are the ones who con-

CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

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tribute the most to the building up of an effective organization. To be sure, many foremen with good memories mentally classify their workers but a written record will not only emphasize their claim in behalf or against an employee but also assist decisions in the absence of the customary foreman.

—C. L. S.
(Auburn, N. Y.)

Promotion Record Should Include Attendance

("Classifying Ability," Pete & Bill, June, 1938)

Editor, Overseers' Corner:

Aside from general things that are used as basis for a point system for promotion, a major factor that should be included is attendance (or absence). The cards that Pete intends to use should carry a record of each time the employee is absent from his work, and be keyed so that the reason is recorded along with the date, even if it is only for a day. These reasons being known, such unavoidable things as court or jury duty, funerals, illness, etc., would not be held against the individual. But petty things that are needlessly used as excuses for being off for a day or so would be weighed thoroughly when considering a man for promotion. Pete's idea is well worth thinking over, as the wise old owl never sleeps.

F. L. Byrd
(South Carolina)

The Rule-Making Complex

Editor, Overseers' Corner:

If radical labor agitators can win the good will and confidence of textile workers by deceit and vicious propaganda, there is no reason why the employers cannot win the employees' good will and confidence by being a little more thoughtful and considerate, especially during periods of widespread unemployment. Too many foremen and overseers have the rule-making complex, especially newly-made foremen who have had little experience in handling help and know very little about human nature. Of course, it is necessary to have a system of production in all departments, and some rules and regulations will have to be adhered to. But foremen should remember it is their business to get production and quality of product, not to reform and regulate the lives of their personnel.

Such rules as: "No singing and whistling while working. No chewing on the job. All employees must report for work 10 min. before starting time," are unnecessarily restrictive and are secretly resented by employees. Just as mighty oaks from little acorns grow, so do mighty industrial strikes from little offenses grow.

In order to build up the confidence and good will of employees, I would suggest that textile mill executives and overseers remember the Golden Rule. Before putting new rules of minor importance into effect, it would be well for the overseer to turn these questions over in his mind: Would I be willing to submit to such a rule if I were an operative? Would I feel that my rights as a free laborer were being infringed? If the operatives should react unfavorably to the rule, is it of more importance than their good will? If your answer to these questions inclines the least bit toward the negative, better forget the new rule. You can not lead people who dislike and distrust you.

—J. W. H.
(North Carolina)

Exchange Ideas in Overseers' Corner

("Scouts in Other Mills," Pete & Bill, August, 1938)

Editor, Overseers' Corner:

One of the Commandments says: "Thou Shalt Not Steal." We have patent laws to protect certain economic ideas. It is certainly not good ethics to try to gain knowledge by sending scouts to another mill, and I don't think any of our best superintendents or overseers would tolerate it. We can certainly get the information we want without doing this. There is not any one of us who knows it all, and the majority of superintendents and overseers are willing to exchange knowledge. I feel this is one of the great benefits we can derive from the Overseers' Corner.

—S. S. R.
(Canada)

Safety in the Picker Room

THE SAFE OPERATOR of pickers and garnett machines avoids injury around machinery by doing the following:

1. He examines his machines when he starts to work to see that all guards are in place and everything working properly. He reports all things that need repair to his second hand or his fixer.
2. Before starting a machine, he looks to see if anyone is working on same.
3. He does not attempt to remove a choke out of screens or beaters. He calls the fixer who stops the machine and removes choke.
4. He does not remove doors in fan flues or chokes while the picker is running.
5. He does not wipe around any moving parts of machinery with waste; he uses a brush or mop or stops the machine.
6. In guiding in lap, he uses the palm of his hand with fingers extended upward, for he doesn't want his fingers caught in rollers.
7. He handles lap pin with both hands and he also uses both hands when wrapping pin. He is careful to get a good hold on pin, so that he will not drop same on his feet.
8. He carries all sharp pointed knives in a sheath or has the point on same rounded, so that if he drops same it will not stick in his foot.
9. He does not wrap end of lap around lap pins while logger heads are down.
10. When working around machines he does not over-reach. He knows his feet may slip, causing him to fall on machine.
11. He knows that belts are dangerous and so he keeps his hands away from same.
12. He keeps all objects such as bottles, etc., off the floor around his machines, for he does not want to be responsible for an accident.
13. He keeps his mind on his work and thus avoids many injuries. He reports all unsafe conditions and practices to his overseer.
14. He keeps up with his work so he will not have to hurry, for hurrying may cause him to injure others or himself.
15. He keeps his hands from under tramp on baling press, and he watches out for loose ties on bales.
16. He pushes needle in opposite direction from hand at all times.

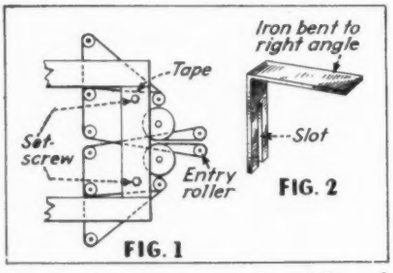
—National Safety Council

Overseers' Practical Helps

Slack Tapes

Nothing is more annoying, when a carder has put a new set of tapes on, than to find the edge tape (as shown in Fig. 1, accompanying), has been stretched by wool which became wrapped underneath the tape, around the entry roller. Of course, a piece can be cut out and the tape made the same length as the others, but then every time the joint breaks 15 min. or more is lost before the card is producing again.

An easy repair can be made by first bending a piece of ¼ in. x 1½ in. flat iron into a right angle, then cutting a slot in one extremity of the bracket so formed, as illustrated in Fig. 2. The bracket is next attached to the card, by utilizing either of the setscrews shown in the first illustra-



Loose edge tapes can be tightened without cutting

THE OVERSEERS' CORNER

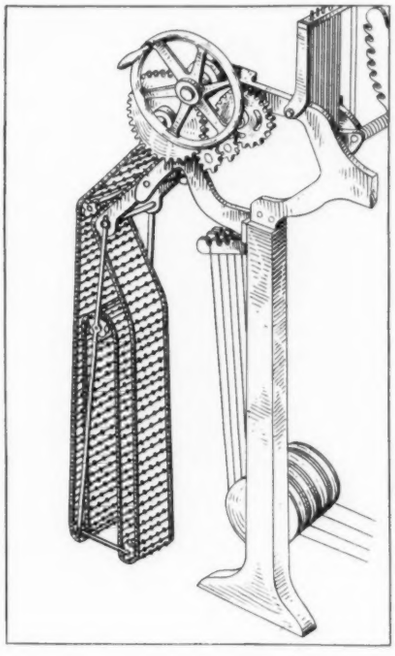
tion, in such a manner that it presses on the stretched tape.

The iron can be made any length or shape desired, to enable the tape to pass over it without undue friction. I have found that this repair will maintain the required tension and the edge tape will last until the whole set is renewed. The difference in the web from this tape compared with that from the others is so small as to be negligible.

T. H. NEAL
(*Melbourne, Australia*)

Head Motion Chain Rack

A chain rack for use on Gem head motions where looms are crowded can be constructed very easily by drilling holes in ⅛-in. x 1-in. strap iron at intervals for different chain lengths, as shown in the accompanying sketch.

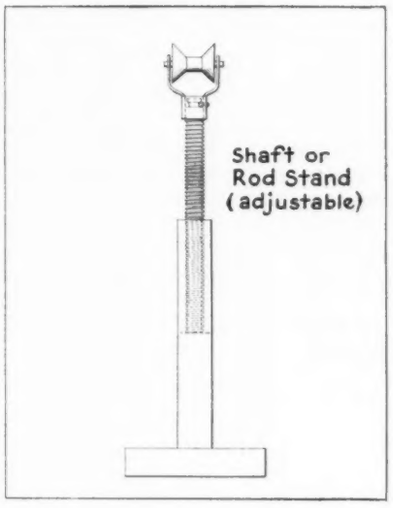


Chain rack for Gem head motion

Other material needed is round ¼-in. stock, eight cotter pins, and three chain rollers with holes all the way through. The ¼-in. stock is run through the chain rollers and strap iron. This rack is particularly useful on Gem head motions using patterns of 150 bars or more. D. H. LEE
(*Long Branch, N. J.*)

Shaft or Rod Support

Many times the machine or mechanical shop is swamped with jobs, and every department is pushing it for completion of work. At such times, it is not always convenient to have an extra man available to aid machinists in changing the position of a shaft, rod, or casting when working them in the milling machines, key-way cutter, gear cutter, press, or mechanical hacksaw. A useful helper then is a device or support, such as is shown in the accompanying sketch. The swivel pulley is mounted on a column threaded similarly to an automobile jack. This support is designed to be adjustable to the height desired, thus placing the supported end of the material in such a position that accurate workmanship can be performed. It allows leveling necessary for cutting correct depths of key-seats and splines, properly spaced gears when cut after being placed on the shaft, and other such items that demand perfection or precision of work. Also, having this pulley or whirl in the swivel of the top of the stand will allow moving the part being worked without extra help. This is an aid toward getting more jobs out of the way in the shop, as well as a step toward lowering costs. —LAMAR FOGEL



Cross-section of adjustable shaft or rod stand

Removing Scale from Spray Nozzles

Scale formations in the spray nozzles of air conditioners seriously interfere with the proper functioning of the equipment. This scale is mineral matter deposited by the spray water, and consists primarily of the carbonates of calcium and magnesium or, in every-day plant parlance, lime. Deposits of this nature can be partially controlled by frequently draining the spray pan and re-filling with fresh water. Most industrial waters contain some mineral matter, and, when the spray chamber is acting as a humidifier, this water is continually evaporated and more water containing dissolved solids must be added to take its place. However, the impurities are left behind in the evaporation process and gradually increase in concentration until they begin to precipitate out of solution in the nozzles. Draining and refilling removes the water containing concentrated solids and substitutes relatively pure fresh water. When the nozzles do become fouled, they can be removed from the conditioner and soaked in a commercial hydrochloric acid (muriatic acid) solution made up of one part acid and one part water. When all scale is dissolved, the nozzles should be immediately taken out of the acid and washed thoroughly with water to minimize action of the solution on the metal.

—S. H.

Questions and Answers

Distorted Stitches in Full-Fashioned Hosiery

Technical Editor:

We are inclosing two four-thread stockings knit on a 42-gage Reading machine. Kindly examine the fabric in the instep portion of the foot and give us your opinion as to the cause of distortion of stitches. The sole portion is 4/2 fringe silk and the footing machine has the maximum amount of rocker possible on this type machine. Silk is 83%, 20-turn, conditioned in humidifying room 48 hours. (8518)

The distorted stitches in the instep of the stockings submitted seem to be due to incomplete action of the stitch-forming devices of the machine, such as sinker, divider, knockover bit, etc. It is our opinion that the trouble can be remedied by increasing the knock-over action.

While we believe the trouble is traceable to faulty machine adjustment, it is possible that it has been brought about by use of a different type or condition of silk from that for which the machine had been previously and satisfactorily adjusted. The fabric gives the appearance of having been knit from harsh or dry

THE OVERSEERS' CORNER

silk. It is possible that the silk used was of old stock; that is, the silk may have been on hand for several months. On the other hand, it may be fresh stock which is harsh because of improper throwing.

We are certain that a check-up made along the lines suggested above will enable you to overcome the difficulty.

Lace Production

Technical Editor:

I wish to produce a kind of lace consisting of small squares some of which are filled out with thread. I should prefer a machine that would be able to fill out the squares with threads in both directions, but would also be interested in machines that fill out the squares in only one direction.

As far as I can see, there are two alternatives: a machine that produces the net and at the same time fills out some squares according to a certain design; or a machine that fills out certain squares of a net that is inserted. Could you inform me about the price of machines of both types, and two or three of the best companies that sell them? It would be desirable for me to have a machine that, first, is small and simple; second, allows the size of the squares to vary from 1/12 to 1/4 in. (for different types of laces, whereas all squares of each type of lace would be equal to each other); third, is able to produce or to fill out also nets consisting of triangles or hexagons. (8576)

The sketches submitted with your inquiry are apparently taken from hand-made articles imported from China, Belgium, and other foreign countries. They could be imitated successfully on two types of lace machine. The nearest approach would be made on either the Levers lace machine or the Barmen lace machine.

Levers lace machines are not built in the United States, and the 644 used in the domestic lace industry have all been imported. The machine is about 10 ft. high, 10 ft. wide, between 40 and 50 ft. in length, and weighs about 15 tons. In 1932, the latest date for which data have been obtained, the cost of a machine to produce lace 184 in. in width was $6,704, including duty. Smaller machines are seldom made, and it should be stated that it is hardly possible to make an economic success of a lace business with one Levers lace machine. At least 10, under ordinary circumstances, constitute a small plant. While these figures are not of recent date, they are sufficiently indicative of the expense incurred in commencing in the lace industry. In addition, the machines are so heavy that the buildings which contain them must be specially constructed. Further, certain accessory machinery for the preparation of warps, etc., is necessary. Other handicaps are that certain cotton yarns necessary in making lace are difficult to obtain in the United States. Men to operate the machines and prepare the drafts of specifications of the patterns are mainly English or French, and their entrance to this country for employment of this nature is entirely controlled by the Department of Labor.

The second type of machine mentioned is the Barmen lace machine, of which there are about 1,000 in this country operated by three firms. Additional machines built are constructed by the operating firms or imported from Germany. The machine is much smaller than the Levers machine, is of circular form, and the cost, including duty, in 1928 was $528 for a small machine of 44 spindles. Production from an individual machine is so small that it is necessary to work them in large numbers to obtain satisfactory commercial results. The smallest plant in the United States operates 156 machines; the largest plant, 500.

It will be seen, therefore, that in neither case is the commencement of the business in a small way commercially desirable, especially in view of the fact that the industry is quite difficult technically and an experience of several years is necessary in order to obtain the requisite knowledge for the successful conduct of the business.

Cones vs. Bottle Bobbins

Technical Editor:

Kindly let me know if it is common practice among American cotton underwear manufacturers to knit be directly from the cone or to back wind on to bottle bobbins previous to knitting? (8608)

It is the general practice to knit from bottle bobbins. However, a modern cone winder, if in good shape, should give satisfactory knitting packages.

Black Spots in Knit Goods

Technical Editor:

Inclosed is a sample of knitted fabric. I should like to learn the cause of the black spots. What I should like to know is whether this stain was caused after the yarn was spun, or if it came through from the card room. (8590)

Our examination of the sample indicates that the stains did not come through from the card room. We believe that they were put in the yarn during spinning or some operation following spinning. We base our belief on the fact that wherever there is a stain it appears to be in one course, but may show up in more than one rib of that course. It appears to be the blackened residue of a grease or lubricating oil from a worn bearing or from a twister ring.

Pile Fabric Warp Strength

Technical Editor:

We are enclosing two samples of velvet cloth in the gray. In the tinted sample, the warp is made from 2-thread organzine, 20/25 turns. In the white sample, the warp is made from 2-thread 13/15, 50/55-turn crepe.

We have tested both of these cloths, and we find that the warp in the white fabric is much stronger than that in the tinted fabric, in fact, the white sample is almost twice as strong as the tinted sample.

We will appreciate it very much if you will give us the reason for one being stronger than the other. (8498)

The difference in the strength of the fabrics is due to the difference in the size of the yarn; the natural colored warp yarn is composed of 2 threads of 20/22 or a 42 denier yarn, while the tinted warp is composed of two threads of 13/15 denier or a 28 denier yarn.

Cross-Dyeing Viscose-Acetate Ribbon

Technical Editor:

Inclosed is a sample of ribbon made with a viscose rayon selvage and an acetate warp and filling. We have tried to cross-dye the ribbon, keeping the acetate a pure white, while dyeing the viscose, but find it takes a tint. We shall appreciate any information you can give us that will improve the appearance of the white in dyeing this type of ribbon. (8580)

There are a large number of direct dyes which will dye viscose and leave acetate rayon untinted. However, the success of the procedure depends on getting a fairly good exhaust of the direct color and rinsing the fabric free from all traces of loose dye before drying. Otherwise, the heat of the dryer will cause some color to bleed and tint the acetate. To obtain this particular shade Direct Fast Scarlet 4BS (C.I.No.326) is a suitable dye. When the dyeing is finished, add a little acetic acid and epsom salt to the final rinse water, which will keep the color from bleeding.

THE OVERSEERS' CORNER

Loom Beams Held Upright

Simple device keeps them off slasher-room floor

MANY textile men have the knack of devising homemade gadgets which increase the efficiency of their departments. Two such items, designed specifically for keeping white waste and roving bobbins off the floor, were described in our October issue.

A third gadget for keeping things off the floor is a rack for beams in the slasher room. In fact, two different type racks were noted in this room. The first is a wooden track, faced with iron and two tiers high, on which warps for the slasher are stored. The warps are rolled on the track as far as possible and then lifted on to the slasher by means of an overhead carrier. A similar arrangement was described in the March, 1936, issue of TEXTILE WORLD, as noted at Lanett (Ala.) Mill; hence there is no need for a detailed description of this rack. The other rack, which is a little different from anything this writer has yet seen, is designed to hold loom beams until they are ready to go into the loom. The rack, as shown in Figs. 3 and 4, has a frame of 3-in. iron pipe, bolted firmly to the floor. At regular intervals arms made of flat iron extend to either side. Each of these is attached to the pipe by means of a loop bent in one end; it is so arranged that it can be raised to receive a beam, then lowered again. One end of a beam is placed in an iron cup fastened to the floor and an arm of the rack lowered over the other end so that it holds the beam firmly in an upright position. Arms are kept from sliding laterally on the pipe by means of stops set-screwed on each side of each pair.

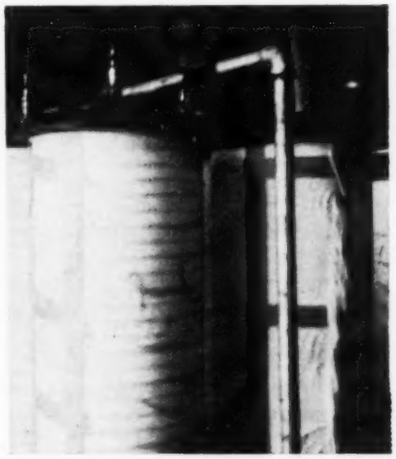


Fig. 3—Homemade rack holds warp-beams until ready for placement in looms

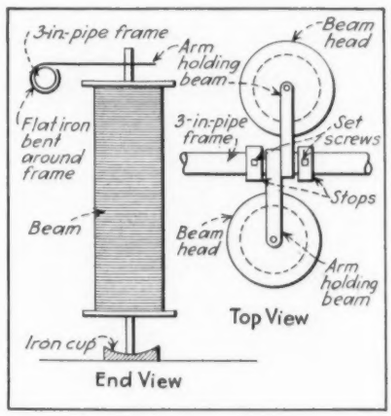


Fig. 4—Diagrams showing construction of loom-beam rack

Towel and Cloth Conveyor

Reduces costs and makes trucking unnecessary

By E. E. EDMISTON

ONE unusual device which we installed in our mill some time ago is a towel and cloth conveyor. Prior to building this conveyor, we loaded our goods to be bleached, especially terry towels and flannels, in boxes. These boxes were pushed out to the loading platforms where they were loaded onto a truck and carried to the bleachery. The empty boxes had to be brought back to the gray room. After the goods were bleached, they were loaded into boxes, put on a truck, and carried to the finishing room. The empty boxes had to be brought back again. We handled 230,000 lb. of towels four ways per week, besides our flannel and other goods. This required two trucks and four men. When we installed the conveyor, the trucks were eliminated.

We pick up the goods in the gray inspecting room and carry them down to the bleachery through 5-in. porcelain pot-eyes which are fastened to overhead timbers in the monitor of the mill. After the towels are bleached and dried, they are carried across the mill yard through pot-eyes mounted on poles and under a galvanized iron hood, which protects them from the weather. We have something like 5,000 ft. of these conveyors.

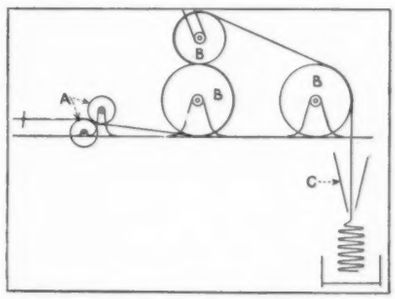


Fig. 1. Scutcher with spiral rolls to spread goods—"A" spiral rolls; "B" wooden drums; "C" folder.

In our finishing room we built a machine with a frame made of channel iron and supported it from the overhead beams. This machine is built something like a scutcher. The goods are carried over in rope form, and the machine spreads them out and

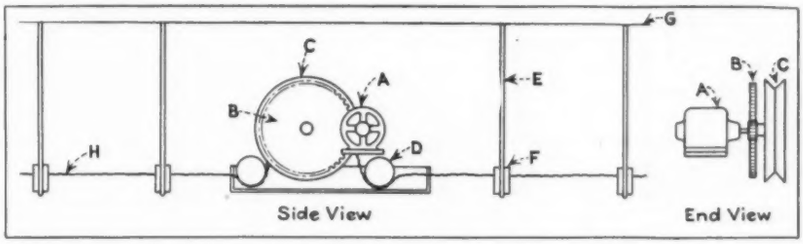


Fig. 2. Booster in conveyor line.—"A" motor; "B" gear; "C" sheave; "D" guide pulley; "E" pot-eye brace; "F" pot-eye; "H" cloth; "G" roof

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folds them in boxes ready for the cutters. On this line we have several boosters 300 to 500 ft. apart. Each booster consists of a 20-in. aluminum sheave driven by an individual ½-hp. motor. When the motor that drives the scutcher is started, the switch also supplies current to the ½-hp. motors of the boosters all along the line. Though there is no tension on the line of goods before the clutch is thrown on the scutcher, the sheaves do no harm to the goods. The drums pull the goods, tightening up on the first booster, the second booster, and so on, to the last booster. All of the machines can be stopped from either end of the line by pushing a button, but they can be started only from the scutcher or doffing end of the line. Also, we have a switch in the line at each sheave, so that in case the goods become separated by bad seams or from any other cause, this switch will trip and thus stop the whole line.

We handle the goods from the gray room to the bleachery at 207 yd. per min., and the finished goods at 156 yd. per min. with hardly any stoppage at all.

Highlights of S.T.A. Discussions

On spinning, slashing, weaving, and air conditioning

FOLLOWING is a concise summary of the more vital subjects discussed at the fall technical meetings of the Southern Textile Association. As there was considerable duplication of questions at the various division meetings, an effort was made to select representative topics from each discussion which would not result in a repetition of the same conclusions.

S. C. Carders and Spinners

Carding and spinning of staple rayon were discussed at greater length than any other topics at the meeting of the Carders and Spinners Section of the South Carolina Division, held at Greenville, Oct. 15. Presiding over the gathering was Joe A. Lyons, superintendent of Orr Mills, Anderson, general chairman. The carding discussion was led by R. T. Stutts, superintendent of Simpsonville and Fountain Inn plants of Woodside Cotton Mills Co. W. T. Morton, overseer of spinning, American Spinning Co., Greenville, was in charge of the spinning session.

An exhaustive description of methods of handling staple rayon through the preparatory processes was given by J. L. Brannon, overseer of carding and spinning, Hermitage Cotton Mills, Camden. In substance, he said that from 10 to 15 bales of 400 lb. each are fed into the hopper of a one-process picker with three-blade beaters slowed to 600 r.p.m. As the lap could not be satisfactorily removed from the pin, the pin was turned down to a ¼-in. taper. Bars are closed so that cleaning is necessary only every two or three weeks even though 5,000 lb. daily are run through the machine. A special stand was built at the back of the cards so that stripping can be fed back into the lap. A reversed plate causes the flat strips to fall back on the lap. Stripping is done three times on an 8-hr. shift when imported rayon is used and twice when domestic staple is used. There is practically no waste in the picker room, but the cards produce about as much fly as a good grade of cotton. After operating his cards at speeds varying from 5 to 12 lb. an hour, he decided that 8 lb. is most satisfactory. Sliver was increased from 50 to 60 grains. When a satisfactory hopper arrangement is worked out for the back of a card, Mr. Brannon believes that the mills can completely eliminate the picker room for staple rayon. With reference to spinning, he stated that he prefers leather rollers if double roving is being used. Front roller speed on 30s warp is 130 to 135 r.p.m., spindle speed is 8,200 r.p.m. (after trying up to 9,500 r.p.m.), ring is 1¾ in., traverse is 6 in., twist multiple is 3½, traveler is ⅝-circle, same as used on cotton, staple $1\frac{5}{16}$ in. A test showed 30s to break at 61½ lb.; 32s, at 54¾ lb. Rayon staple appears to produce more fly than cotton in the spinning room, but can be satisfactorily spun in the same room from standpoint of humidity and other conditions. However, mixed fibers show up in dyeing. Mr. Brannon reported no special trouble with rayon staple on high-speed spooling and warping, except the formation of more fly than cotton. Cotton and rayon mixed 50% take the same relative humidity—62% on 1¼-in. cotton and 1½-in. rayon. On 30s the break was 68 lb. at 62% humidity; on 31.6s it was 58 lb. at 65%; on 34s the count averaged 33.80s at 60% humidity and broke at 42 lb. In weaving, 75% humidity is found more satisfactory than the usual 85%. Spinners run the same number of sides on rayon as on cotton.

Robert T. Stutts, Woodside Cotton Mills, who led the carding discussion at Greenville meeting

The remedy for long-draft yarn skinning on the snick plate of a high-speed spooler is to raise the guides if they are too close.

The 1938 cotton crop is much superior to the previous crop, with the exception of cotton from the coastal region of South Carolina, the lower Mississippi Delta, and the Pine Bluff region of Arkansas. Texas cotton is averaging $1\frac{1}{16}$ in. and is better in every respect than the crop of last year.

Gaston County Division

Long-staple cotton spinning problems were the basis of the meeting of the Gaston County Division held at Gastonia, N.C., Sept. 30. Marshall Dilling, Smyre Mfg. Co., chairman of the group, presided. Guest speaker

Marshall Dilling, executive secretary of Southern Textile Association, who presided at Gastonia as chairman of Gaston County Division

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was J. R. Henderson, sales engineer, Parks-Cramer Co., Charlotte, N.C., who presented a paper on "Modern Trends in Air Conditioning." Elected or reelected to the executive committee were A. P. Richie, Marshall Dilling, F. C. Mosteller, Charles Ward, George Grice, and H. H. Roberts.

Opinion was divided as to the advisability of spreading flyers on roving frames to produce a larger package. S. M. Cauble spread his roving frame flyers from 6x2½ to 6x2-¾ with the result that the bobbins run 7 hr. 20 min. longer in the spinning frame creel. He believes that all sizes of flyers can be satisfactorily spread. On the other side, Charles Ward argued that small flyers can be spread satisfactorily, but on large flyers the finger is pulled so much off center the presser whips out and causes a lump to build on the bottom of the empty bobbin.

Speaking on air conditioning, J. R. Henderson, sales engineer, Parks-Cramer Co., Charlotte, N.C., offered the following information relative to the warmth and comfort of operatives:

"Some distinction should be made between warmth and comfort. The effective temperatures usually specified represent comparative feelings of warmth, rather than comfort. For example, 75°F. at 90% humidity, 80°F. at 50% humidity and 88°F. at 10% humidity all represent 74° effective temperature. These conditions are equally warm to the human body under normal conditions of exposure, but because of the extremes in humidity are not quite equally comfortable.

"Effective temperature charts of the American Society of Heating & Ventilating Engineers show that humidity plays a comparatively unimportant part in comfort. Lowering the temperature 1°F. at constant relative humidity is equivalent to lowering relative humidity more than 5% at constant temperature in summer. Dehumidifying the air from 60% to 40% at 85°F. causes no more improvement in effective temperature than lowering the temperature to 82°F. and keeping the humidity at 60%. Use evaporative cooling to lower the temperature to 79°F. and increase humidity to 79%, and the same improvement in comfort will result."

S. C. Weavers Section

Slashing and weaving topics were emphasized Oct. 22, at the Spartanburg, S.C., meeting of the Weavers Section of the South Carolina Division, with Joe A. Lyons, presiding as chairman. H. E. Littlejohn, of Drayton Mills, Spartanburg, led the discussion. Governor-elect Maybank, of South Carolina, was guest speaker at the meeting.

A number of the questions were devoted to starch mixtures, a summary of the answers following: Opinion was about evenly divided as to the comparative advantages of thin-boiling starch over pearl starch liquefied with enzymes. Several members said that pearl starch properly treated with enzymes is satisfactory for fabrics up to 80x80 construction, but prefer the other starch for finer goods. Others prefer thin-boiling starch for all purposes. It was pointed out that enzymes could be purchased in weighed bags to simplify the mixing. The majority of members declared that cornstarch is preferable to either tapioca or sago. The quantity of dry size which should be added to yarn was agreed to be dependent on the number of the yarn and construction of the goods. From 8 to 12% was estimated as the proper amount of size for ordinary print-cloth fabrics. From 6 to 8% is used on the coarser constructions. Spun rayon calls for from 5 to 6% size.

Wool slasher blankets were reported to give the best service when a new blanket is put on top of the old one for a period of breaking-in. The practice of doubling a new blanket causes it to last too long and become so saturated with size that it loses its resiliency.

Northern N. C.-Va. Division

Spinning, weaving, air-conditioning and the manufacture of full-fashioned hosiery were discussed at the meeting of the Northern North Carolina-Virginia Division of the Southern Textile Association, held at Burlington, N.C., Oct. 22. W. J. Jennings, Minneola Mfg. Co., Gibsonville, N.C., chairman of the group presided. L. J. Rushworth, president of the S.T.A., spoke briefly on the Wage-Hours Law. F. R. Owen, assistant secretary and treasurer, Gibsonville Hosiery Mills Co., Gibsonville, presented "Some Thoughts on the Hosiery Business." S. C. Simpson, Bahnson Co., Winston-Salem, N.C., read a paper on present trends in air-conditioning textile mills. J. Lloyd Brewer, superintendent of Standard Hosiery Mills, Burlington, N.C., discussed "Formation of Good Selvages in Full-Fashioned Hosiery." (Mr. Brewer's remarks will be published in a subsequent issue). Officers elected to serve until the spring meeting in 1940 included W. J. Jennings, chairman, J. R. Copland, vice-chairman, and J. O. Thomas, secretary. Elected to the executive committee were S. S. Holt and Howard Barton.

L. J. Rushworth, of Danville, Va., president of S.T.A., who spoke at Burlington meeting.

Manufacture of rayon-wrapped cotton yarn was discussed in detail. A summary of the remarks made by J. L. Fonville, superintendent of King Cotton Mills Corp., Burlington, N.C., is as follows: The method of wrapping rayon yarn around 30s cotton yarn core is in general dependent on the effect desired. The thread looks like one continuous fiber as it goes under the front roller in the manner of mock-twist yarn. When the core yarn is brought under the front roller, a separate trumpet is necessary. A little hook arranged to come down under the front roller and traverse with the roving guide is helpful, as the rayon cannot be satisfactorily run through the roving guide. The core yarn should be soft twist and in the same direction as the other yarn so that the result will be smooth. A somewhat shorter draft is used on core yarn, in view of the additional weight.

S. C. Simpson, of Bahnson Co., Winston-Salem, N. C., speaking on "Present Trends in Air-Conditioning Textile Mills," said that he believes evaporative cooling is the most practicable method of air-conditioning textile plants because of the cost and other objections to refrigerative cooling. The chief objection to the former system is that the mill temperature rises with the outside wet-bulb temperature. However, humidity is necessary in textile operations, and it is better "to compromise a little on temperatures than to put in too much equipment and not use it except on wet days or damp days."

LOOMFIXERS' MANUAL

COTTON SECTION—Chapter V—*(Continued)*

By IVAR MOBERG

Harness Motions

IF A FABRIC to be woven is of a type in which the harnesses are called at irregular sequence; e.g., one pick may have two harnesses up; another, three; a third, one; and so on, it is necessary to use a top motion which operates each harness independently.

Spring Tops

There are several types of these, all utilizing springs for moving the harnesses. In the Dwight spring top and the Brown sidespring top the inherent disadvantages of springs have been reduced by employing compensating sheaves. Figure C40 shows a Dwight spring top rigged for four harnesses. The compensating sheaves (not visible) are eccentrics so designed that they reduce the expansion and increase the leverage of the springs as the harnesses are depressed. Figs. C41 and C42 show a compensating sheave at, respectively, up and down positions of the harnesses. Correct procedure for setting a spring top is as follows:

1. Hang up harnesses on hooks suspended from the arch of the loom. These hooks should be long enough to suspend the harnesses well below their normal "down" position.

2. Hook up jack sticks to the bottom of the harnesses.

3. Tentatively attach harness straps to harnesses, making certain there is enough tension on the springs to lift the harnesses until the treadle rolls are up against the up-portion of the cams. Adjust the harnesses until they are level; however it is not necessary to be too particular about their position at this time.

4. Turn the loom over: so adjust the jack straps that the bottom shed will be down on the race plate; and insert picks by hand as the proper sheds are formed. Continue until two repeats of the weave are made, to make sure all harnesses are properly positioned in the bottom shed.

5. Make final adjustments to the spring top. On all harnesses which are at the moment down, adjust the compensating sheaves so that the flat surface barely clears the uppermost harness strap, as shown in Fig. C42. This adjustment is made by unhooking the strap and moving the pin in the compensating sheave to another hole in the strap, up or down as the case may be. Turn the loom over and repeat this operation until all compensating sheaves are in the position described. To get the full benefit of compensating sheaves, the flat surfaces must be almost parallel with the uppermost harness straps. However, under no circumstances permit the inside end of the flat surface to run into the straps, as this would increase the leverage in favor of the springs when the harnesses are in down position.

6. Depress by hand in succession each of the harnesses which is up, and allow them slowly to rise into the top shed. Adjust tension of the springs until they are barely able to lift the harnesses fully into the top shed, and the treadle rolls against the cams, with the warp under normal tension.

Fig. C43 shows a Brown side-spring top. *A* indicates the position of a compensating sheave with harness fully down and *B*, with harness fully up. This top motion is much easier to adjust than previously described types and requires a smaller amount of strapping. Steps in adjusting follow: 1. Hang harnesses on harness-strap hooks and see that they are level. 2. So adjust the jack straps that the bottom shed is down on the race plate. Make sure the stop inside the compensating sheave does not interfere with the pulling of harnesses down into the bottom shed. If it does, move the strap screw into another hole nearer the bottom of the strap, adjusting until the stop is cleared with harnesses fully down. 3. Turn the loom over and ascertain that the stop does not interfere with lifting of harnesses into the top shed. If it does, move the strap screw nearer the top of the strap, until the trouble is eliminated. 4. Depress by hand in succession all harnesses in the top shed, and adjust the tension of the side

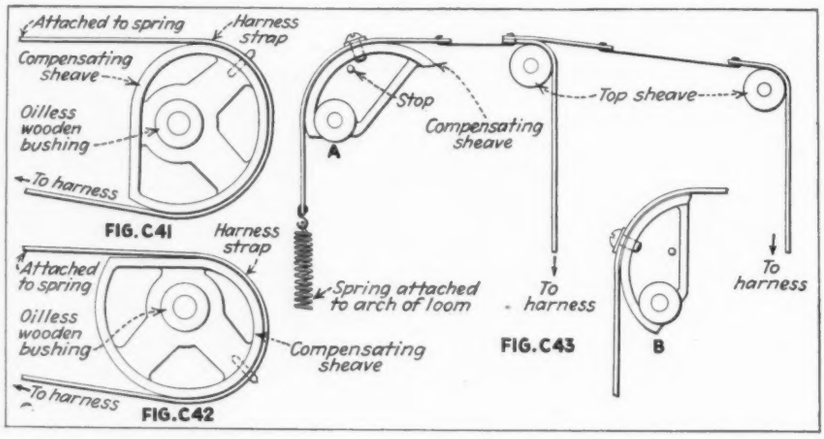

Fig. C41 and C42. Position of compensating sheave with harness fully up and fully down. Fig. C43. Brown side-spring top motion

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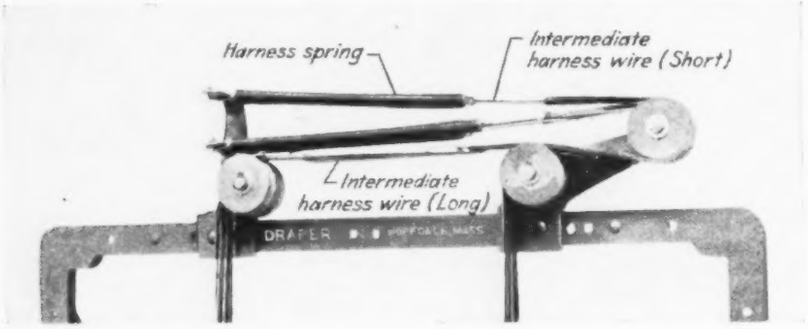


Fig. C40. Dwight spring top rigged for four harnesses

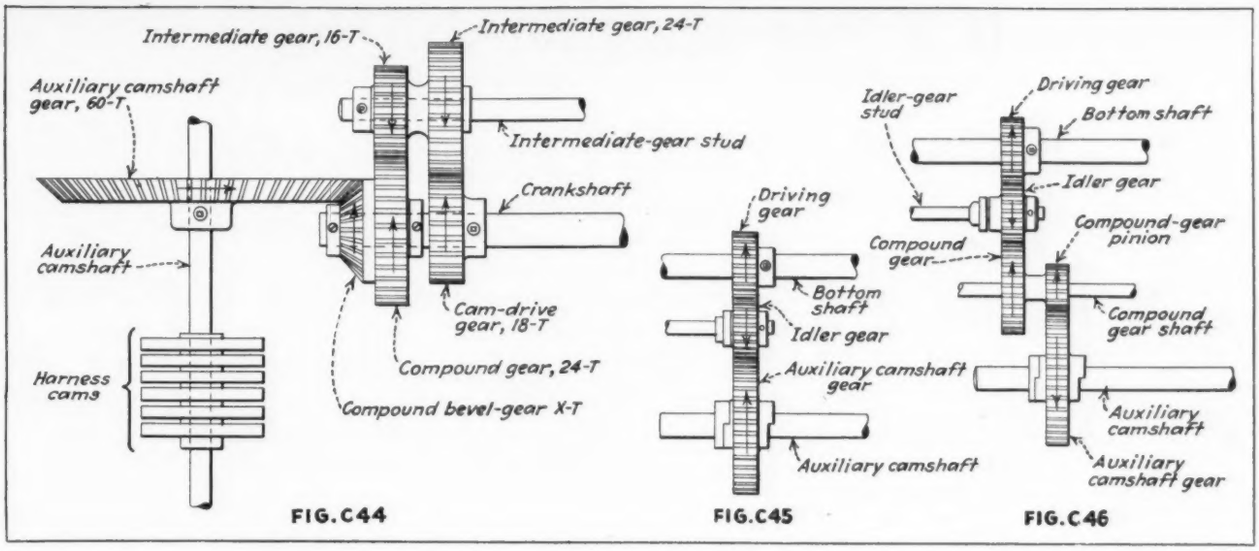


Fig. C44. Side-cam harness motion driven from crankshaft. Fig. C45. Gearing for single drive of undercams. Fig. C46. Compound cam drive of type used for seven- and eight-throw cams

springs so that they will barely lift the harnesses fully into the top shed when pressure is slowly released.

Side-Cam Harness Motions

Of all motions, side- or end-cam types are probably the most positive and ideal as far as shedding is concerned. However, although they have a greater capacity than the under cams, they have the disadvantages of being expensive to change over and, in some cases, of adding to the floor space occupied by a loom.

With crankshaft drive, the capacity of side-cam harness motions, is, ordinarily, eight harnesses and eight picks; with bottom-shaft drive the capacity is increased to twelve harnesses and fifteen picks. The greater number of picks in the latter case is made possible by the larger diameter cams commonly used with the bottom-shaft drive. Fig. C44 shows a side-cam harness motion driven from crankshaft. The drive is compound and geared for 8-pick cams. In single gearing (generally used for up to 4 picks on crankshaft drive and up to 8 picks on bottom-shaft drive) the cams would be driven directly from the bevel gear on the crankshaft. In such cases, the compound gear shown in the illustration would not be used.

The setting of this harness motion is comparatively simple; and includes the following steps: 1. Suspend harnesses on hooks from loom arch, then hook on all bottom straps. 2. Make sure the stirrups on the treadles are in the same notch at both top and bottom. It is very important that the top and bottom stirrups be exactly the same distance from the treadle fulcrum; otherwise, the straps will be alternately tight and loose. 3. Hook up all harnesses on the top straps; make the straps as tight as possible, because they have a tendency to stretch and become loose in operation. 4. Turn the loom over and so adjust each harness that, when it is in the bottom shed, the warp ends will be level with and touching the race plate. To do this, unhook top hooks and shorten or lengthen, as the case may require, the bottom straps; also make the necessary corresponding adjustments in the top shed. These adjustments are easier to make if the loom is turned so that the harness to be altered is either in the center or at the top in its movement.

Cam Drive Calculations

Calculating the correct driving gear for various cams is comparatively simple mathematics and should be learned by every loomfixer. For single drive of undercams, as illustrated in Fig. C45, it is necessary only to divide the cam throw (number of picks per revolution of the cam) by two and then divide the quotient into number of teeth in the auxiliary-camshaft gear. Thus, for a 3-throw cam and a 60-tooth auxiliary-camshaft gear, the calculation would be: $3 \div 2 = 1.5$; and $60 \div 1.5 = 40$-tooth driving gear. By the same method, it can be determined that, with the particulars otherwise unchanged, the correct number of teeth for a 4-throw-cam driving gear would be 30; for a 5-throw-cam 24; and for a 6-throw-cam, 20.

This is the limit to which single drive usually goes, as a 20-tooth driving gear is the smallest that can be bored out to fit a camshaft. For cams with a larger number of throws, compound drive must be used. Fig. C46 shows a compound cam drive of the type used for seven- and eight-throw cams. The formula for determining the driving gear is as follows: Choose a compound gear which is a multiple of the throw of the cam in question and a size convenient to mesh with the auxiliary-camshaft gear. For a 7-throw cam choose a 35-tooth compound gear, since $5 \times 7 = 35$. Next, divide the throw of the cam by two, to obtain the ratio of the cam throw to the botton shaft. The equation will then be: Compound gear $\times$ cam gear $\div$ compound-gear pinion $\times$ cam-throw ratio $=$ teeth in driving gear. Numerically: $35 \times 60 \div 20 \times 3.5 = 30$-teeth.

For 8-throw cams the calculation would be: $4 \times 8 = 32$-tooth compound gear. $8 \div 2 = 4$ (cam-throw ratio). And, $32 \times 60 \div 20 \times 4 =$ 24-tooth driving gear. An 8-throw cam can also be run by an 18/36-tooth compound gear and pinion, in which case the speed of the auxiliary camshaft is reduced by exactly one-half and the driving gear is the same as for a four-throw cam in single drive. Thus, $36 \times 60 \div 18 \times 4 = 30$-tooth driving gear. The 18/36-tooth combination cannot be used with 7-throw cams, as 3.5 does not divide evenly, leaving a fraction of a tooth.

Side-Cam Driving Gears

Driving gears for side cams are figured similarly, with the exception that, if the cams are driven from the crankshaft, the cam throw is not divided by two. A 3-throw side-cam driving gear would be calculated: Cam gear $\div$ number of throw $=$ teeth in driving gear. Or, $60 \div 3 = 20$ teeth. By the same method of calculation it can be seen that a 4-throw cam would require a 15-tooth driving gear.

(Mr. Moberg's discussion of Harness Motions will be concluded in an early issue.—Editor)

LOOMFIXERS' MANUAL

RAYON AND SILK SECTION—*Chapter II (Concluded)*

By H. E. WENRICH

Shuttles and Tensions

WHEN shuttle points come loose due to defective workmanship, or are soft, the shuttles should be returned to their manufacturer for replacement. However, there are times when shuttle points may be forced loose due to loom adjustments. This is most frequent on quill-changing looms, when the force with which the change is made is too severe. Check the points, especially the brass or fiber shims, as a loose shim will prevent further satisfactory use of the shuttle.

Quill-changing shuttles in which the throat is too narrow also give rise to serious defects. The quill will in time split the shuttle, or even break it. The remedy is to make sure that full bobbins at all times fit perfectly flush with the throats of shuttles. Care should also be taken to make certain that replacement quills are always transferred properly. If they are improperly transferred, and are forced to one side so that they hit the wall of the shuttle, the thin walls will soon crack or break.

Quill Spindles and Clips

There are many different types of quill spindles and clips. Fortunately, however, most of them are similar in general principle, and can easily be understood. Two types are shown in Fig. RS8. That at the top holds the ear clip and spindle in place by means of four hardened-steel pins which enter through the front side of the shuttle. The one shown in the lower part of the illustration has a screw bolt, entering through the front side of the shuttle, to hold the clip in place.

When removing broken ear clips, punch out pins in the order marked—1, 2, 3, and 4. Use a long, thin nail punch to avoid enlarging the holes in the back of the shuttles. If ear-clip pins work through the back of a shuttle, they will ruin a costly reed in a few minutes.

When replacing clips, reverse the order in which the pins were punched out. The pins should fit snugly through the ear-clip holes, otherwise they will work loose when the shuttle is placed in use. Sealing wax, melted into the holes over the pins, will help keep them in place.

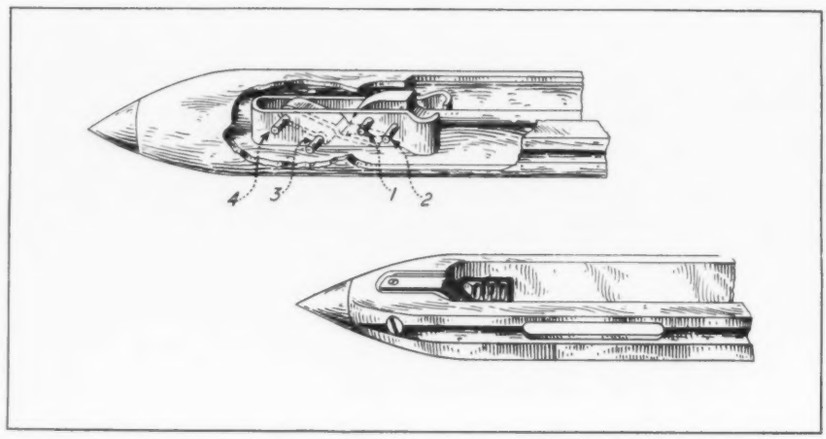


Fig. RS8. Two methods of holding quill spindles and clips

When screw bolts in shuttles become cut and broken, it will frequently be found that the shuttle has too much pick in the direction of the quill tip. This causes the clip to cut into, and eventually through, the bolt.

A drop of oil placed on clips and spindle pins will help keep working parts from wearing. Snug-fitting quills will help prevent filling yarn breaks.

When small bruised or splintered spots appear on the top, bottom, or sides of a shuttle, the part affected should be ground down on a fine emery or sand wheel, and smoothed to a fine polish by hand rubbing. On wood shuttles, after smoothing these damaged spots, complete the job by applying a few drops of shellac and polishing the shuttle. Fiber shuttles can be smoothed better by placing a few drops of oil on the worn part before giving it a final polishing.

Storing Shuttles

It is advisable to remove all shuttles from looms that are to be idle for any length of time. Some manufacturers have the shuttles removed from the boxes each week-end, to prevent loom trouble on the Monday starting. This is a wise plan, and could well be placed in practice in all mills. When shuttles are to be stored for a period of time, wrap each set separately in moisture-proof paper, and tag with the loom number. Store the wrapped shuttles in a place free from excessive humidity, as moisture will soon deteriorate wood or fiber-clad shuttles—the dampness has a tendency to seep into the joints, spread them open, and make the shuttles unfit for further use. When looms are started up after a long shutdown, the correct set of shuttles for each loom can be secured by checking the tag number against the loom number.

Use Matched Pairs

On two-shuttle weaves, when it becomes necessary to replace a broken or damaged shuttle, remove both shuttles and use the good one for replacement on some other loom. Always install two new shuttles, or a matched pair, when it is necessary to change one or the other of them; this precaution avoids a great deal of loomfixing and insures the looms running better. When matching shuttles for pairs, loomfixers should gage top and bottom widthwise for correct sizing of the shuttles from tip to tip. This can be done, to a certain extent, by using a shuttle gage or the open jaws of a monkey wrench, but this kind of gaging is definitely haphazard. To do a real job, the mill should have a truing machine. Such a machine insures rapid, perfect matching of one or a hundred pairs, and with perfectly true shuttles there is less tendency toward banging-off and flying shuttles. With a truing machine, all shuttles can be accurately matched from end to end, so that every point will strike into the receiving leather or rawhide picker at exactly the same place as every other point.

STAPLE COTTON FABRICS

By JOHN HOYE

Fabric Technician with W. Harris Thurston, New York

This thirty-sixth installment of Mr. Hoye's series of articles on staple cotton fabrics which began in the January, 1936, issue, completes the discussion of work-clothing fabrics and begins the discussion of ticking.

McCampbell & Co.

Steep-twill whipcord—36 in., 110x56, 9 oz., mercerized and preshrunk

WORK CLOTHING FABRIC

COTTON whipcords are strong, durable fabrics with a prominent twill effect. The better qualities are made with steep twills (63°) similar to worsted whipcord or gabardine. Others are made with regular twills (45°).

Steep-twill cotton whipcords are made with hard, mock-twist, single yarn warp, and are woven with the same weave as that used for 11-harness gabardine. The fabric often is mercerized—also preshrunk. The yarn twist and the finish produce a wiry texture in the cloth.

The majority of whipcords are regular 45°, 4-harness twills, with the twill line to the left. The lines are less prominent than those of the steeper twills. These 45° twills are known also as artillery twill and cavalry twill. The name "cavalry twill" is used too, for a steep double-twill-line whipcord made with colored yarns on nine harness and in a tricotine weave.

Colors used for whipcords are forest green, various shades of tan and brown with white flecked effects, and both light and dark oxford gray. In tan and brown shades the mottled or flecked appearance is obtained by using a single mock-twist warp yarn spun from a white or light-colored roving and a dark-colored roving. Solid brown or black filling is used. Usually oxford gray is obtained by using a single mock-twist warp yarn spun from a gray and a black roving, or a warp yarn spun from blended roving. Filling usually is black.

Often, whipcords are sold in the regular standard mill finish; however, they sometimes are finished preshrunk. A slight nap, often put on the back of the fabric, makes it warmer and more bulky.

Oxford gray and forest green whipcords are used chiefly for uniforms, caps, trousers, riding breeches, etc. Tan and brown flecked whipcords, sometimes made with a herringbone twill weave, are used chiefly for automobile seat covers, boys' play suits, uniforms, caps, riding breeches, etc.

Warp yarns: 9½s to 20s. *Filling yarns:* 11s to 18s.

Examples of whipcords:

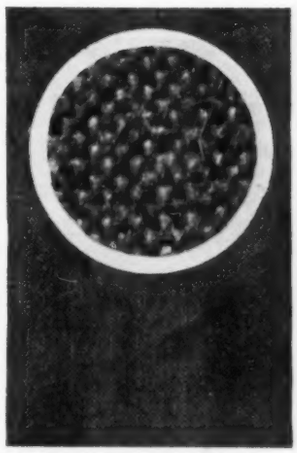
30 in. 68x38 2.40 yd. regular 45° twill—twill to left
30 in. 56x32 8.00 oz. regular 45° twill—twill to left
30 in. 66x34 8.00 oz. regular 45° twill—twill to left
32 in. 60x40 1.90 yd. regular 45° twill—twill to left
36 in. 60x48 9.50 oz. regular 45° twill—twill to left
36 in. 66x44 1.46 yd. napped back
51 in. 64x32 13.60 oz. herringbone twill
30 in. 114x56 8.50 oz. 63° steep twill—twill to right
36 in. 110x56 9.00 oz. 63° steep twill—twill to right
30 in. 66x40 1.80 yd. preshrunk
30 in. 96x44 10 oz. mercerized—napped back
31 in. 62x38 8 oz. preshrunk—napped back

TICKING

THERE are several types of fabrics, known as ticking, used for making regular and innerspring mattresses, bedding, pillows, upholstery, etc. They vary in quality according to their price and the type of filling material to be used; i.e., hair, down, feathers, cotton felt, kapok, moss, or straw.

Fabric that is considered ideal for ticking purposes is closely woven in plain, twill, or satin weave and made of strong warp yarns and soft-spun filling yarns. The soft low-twist filling yarns tend to spread and offer resistance to the penetrating action of filling materials. Harder twisted filling would not offer this resistance. Tickings are always woven with more warp yarns than filling yarns per inch to give the fabric strength where it is needed.

There are two classes of tickings—one known as woven ticking made with dyed yarns and generally finished in the mill where it is produced; the other, known as converted or printed ticking, is converted from the basic gray cloth by bleaching and printing in suitable designs and colors. Mill-finished or woven ticking includes blue and white striped drills or twills, striped warp sateens, jacquard-woven damask, and plain-woven Bohemian pillow ticking. Converted or printed ticking, referred to in the trade as art ticking, includes printed warp sateens, drills, and sheetings.



Imported feather-proof Bohemian ticking—36 in., 76x76 3.00 yd.

BOHEMIAN PILLOW TICKING

Bohemian or Czechoslovakian ticking is a plain-woven, very closely constructed, down- or feather-proof pillow ticking obtainable in both imported and domestic qualities; however, better grades usually are imported from Czechoslovakia or Holland. It usually is of square or balanced construction and has a well-calendered, waxed finish. Patterns used consist of narrow colored stripes on a white ground, a chambray effect obtained by using red or blue filling and white warp, and plain white obtained by using gray warp and filling and bleaching in the piece. This ticking is lighter in weight than feather-proof tickings of twill or sateen weaves.

Uses for Bohemian ticking are down and feather pillows, bolster cases, feather-filled quilts, and down-cushions for furniture upholstery.

Warp yarns: 22s to 26s. *Filling yarns:* 24s to 36s.

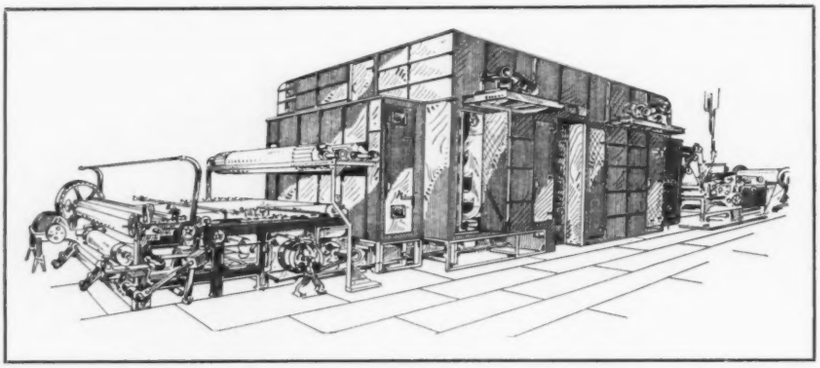
Examples of Bohemian ticking—imported:

36 in. 76x76 3.00 yd. red filling
36 in. 80x72 3.26 yd. plain unbleached
36 in. 96x68 3.60 yd. narrow colored stripes

Examples of Bohemian ticking—domestic:

36 in. 80x80 3.25 yd. plain unbleached
36 in. 80x80 3.25 yd. red filling
36 in. 84x92 3.00 yd. plain unbleached

NEW MACHINERY AND PROCESSES



Hot-Air Slasher for Woolen and Worsted Yarns (Saco-Lowell)

Hot-Air Slasher

In cooperation with Andrews & Goodrich, Dorchester, Mass., Saco-Lowell Shops, 60 Batterymarch St., Boston, have recently developed a new type of hot-air slasher for woolen and worsted yarns.

The heating and drying element consists of a housing assembled on a framework of steel sections, with the side walls and panels made up of an insulating material between steel plates. The interior of the housing is divided into two parts by a horizontal steel plate partition. The upper compartment contains two flat-fin heating units with the necessary steam headers; also, four limit-load circulating fans driven by individual motors placed on stands outside of the housing. The lower compartment contains sheet-steel heating ducts which run the full width and length of the heating compartment. These ducts are connected to the heating compartment by sheet-steel headers so designed that each duct receives its properly proportioned amount of heated air.

Air within the housing is circulated by the four fans so that it comes in contact with the flat-fin heater and is forced into the hot-air manifold from which it passes to the duct supplying the nozzle.

The creel and size box are Saco-Lowell's standard assembly, with such modifications as are required to adapt the assembly to woolen yarn.

Loom Check Straps

E. H. Jacobs Mfg. Co., Inc., Danielson, Conn., has added a new reinforced loom check strap to its line of loom supplies. It is a floating check strap, cut with the natural grain from hairy leather. Asserted advantages are more wearing surface, more gradual checking, less loom shock, conformation to angle of picker stick, power saving, and longer life.

Loom Check Strap (Jacobs)

Heddle-Frame Stud

The "Ideal" heddle-frame lock stud recently perfected by Watson-Williams Mfg. Co., Millbury, Mass., consists of a simple spring mechanism which is encased and rust resistant. By pressing the base of the stud, the rod is easily removed; by releasing pressure, the rod is locked in place.

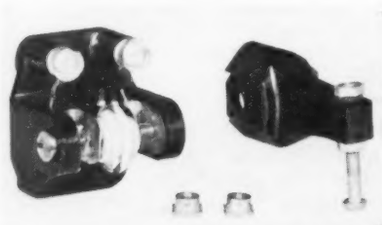
Heddle-Frame Stud (Watson-Williams)

Limit-Switch for Spinning Frames

For use on spinning frames, General Electric Co., Schenectady, N. Y., has recently announced a mercury limit-switch. When used in connection with filling-wind, it limits the amount of yarn that can be wound on the bobbins, thus reducing the necessity of stopping the frame, before bobbins are actually full, in order to maintain doffing schedule. In this way, the new switch affords a means of increased production, by conserving doffing time.

The switch is mounted, preferably, under the roller beam, with the arm of the switch contacting the ring rail by means of a footlatch. As the rail reaches the full bobbin position, it raises the switch arm, which, at a predetermined height, will trip the holding coil in the magnetic switch that controls the motor drive. The normal "coast" of the frame to the "rest" position will drop the switch arm sufficiently to reset the circuit, so that the doffer can operate the shipper-rod normally, for doffing.

The switch itself consists of two shallow chrome-iron cups, sealed together with a strip of lead glass to form a hollow compartment. Separating the cups is a ceramic barrier with a hole in one edge. In the off position, this hole is above the line of the mercury which partially fills the cups. When the element is rotated through an angle of about 20°, the mercury flows through the hole in the barrier and establishes a contact between the two iron cups, thus closing the circuit.

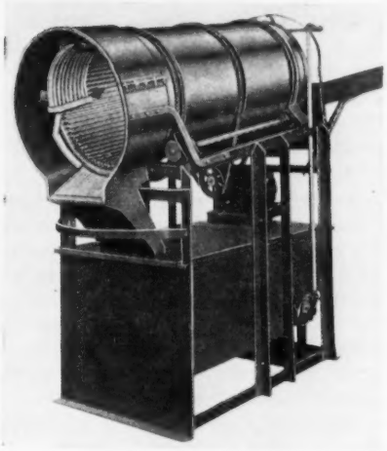


Mercury Limit-Switch (General Electric)

It is stated the mercury limit-switch can safely be operated in lint-laden air on circuits up to 600 volts a.c.

Yarn Conditioner

For conditioning filling yarn, a new machine, called the Rotoconditioner, is being marketed by Frank G. North, Inc., Atlanta, Ga. Bobbins

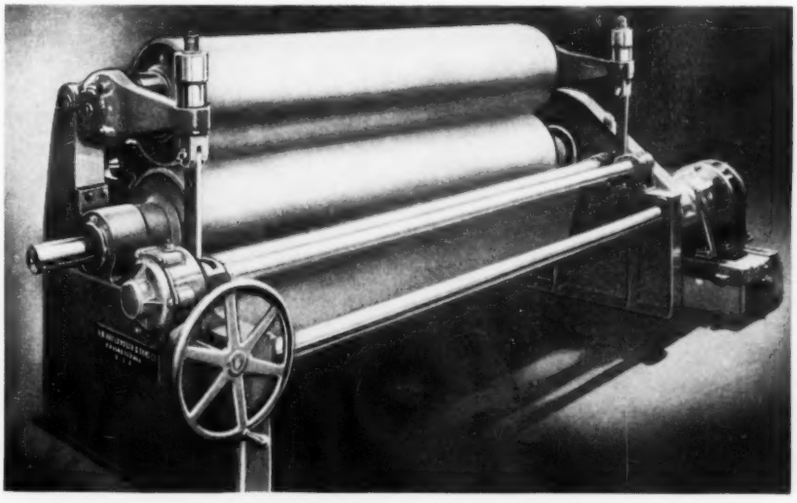


Rotoconditioner (North)

are fed into a hopper on back of the machine and then automatically passed through a cylinder inclined toward the front end, with a gentle rolling motion, so that each bobbin is evenly penetrated by the liquid spray. Force pumps supply the penetrating fluid to stationary spray heads located in the top of the cylinder. A bobbin remains subject to the spray for 10 to 15 seconds, depending on the twist and number of the yarn. Cylinder speed can be regulated according to working conditions. The machine is of sufficient capacity to condition filling for over 1,000 looms. For use with the machine, the manufacturer recommends a conditioning compound called Northol P.C. conditioner.

Padder

A padder developed by H. W. Butterworth & Sons Co., Philadelphia, makes use of micrometer adjustment for applying pressure to the rolls. The padder also is equipped with ball bearings and stainless steel tub and immersion rolls. It is obtainable in three sizes, and can be operated in range with other machines, or as a unit by addition of friction let-off and winder.



Padder (Butterworth)

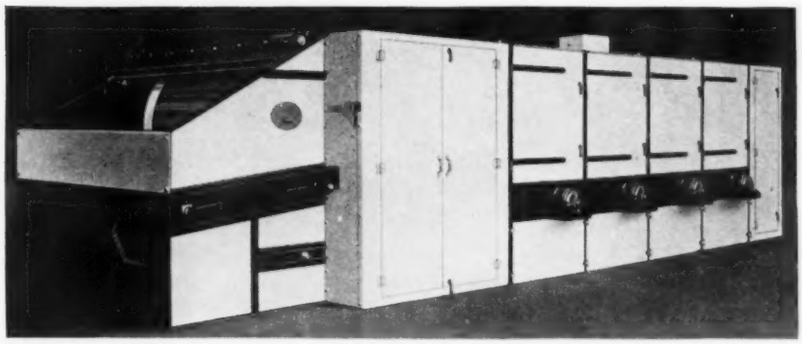
Rotary Feeder and Raw Stock Dryer for Wool

A rotary feeder announced recently by James Hunter Machine Co., North Adams, Mass., resembles the standard feeder as used today only in so far as it has a hopper and a bottom apron, as well as the usual comb and beater. The bottom apron may be either wood or stainless metal and is driven through a ratchet type drive. In place of the usual vertical apron, this unit has a 4-ft. diameter rotary cylinder or drum made up on heavy cast-iron spiders with heavy removable wooden lags, studded with stainless steel spikes, spaced according to the stock to be handled. Each lag is a separate unit dovetailing the lag next to it and can be separately removed in a few minutes through a simple opening in the side of the feeder.

The feeder has an adjustable comb and beater, the blades of which may be of stainless steel, or other corrosion-resisting metal if desired. A cleaning device that consists of a brush, which can be quickly and easily moved away from the cylinder when not in use and which is driven through a jaw clutch and roller chain mounted at the top of the feeder, is optional equipment. A 1-hp. motor and a compact variable-speed-and-gear-reduction unit drives the feeder.

The rotary feeder can be furnished as a separate unit to replace old feeders as well as an integral part of Hunter's new Duplex raw stock dryer.

The Duplex dryer has fans on both sides to effect the drying of more stock per lineal foot of floor space. The fan is direct-connected to its own ball-bearing motor. Extended-surface-type heaters, screened against flying lint, are used. The machine is equipped with a special steel plate apron with automatic lubrication, traveling wool guards, and baffles that accurately direct air streams. It dries about 1,000 lb. of wool hourly in less than 27 lineal feet.



Rotary Feeder and Dryer (Hunter)

100-Watt Fluorescent Lamp

Of particular interest to textile mills is the new 100-watt fluorescent lamp developed by General Electric Vapor Lamp Co., Hoboken, N. J.

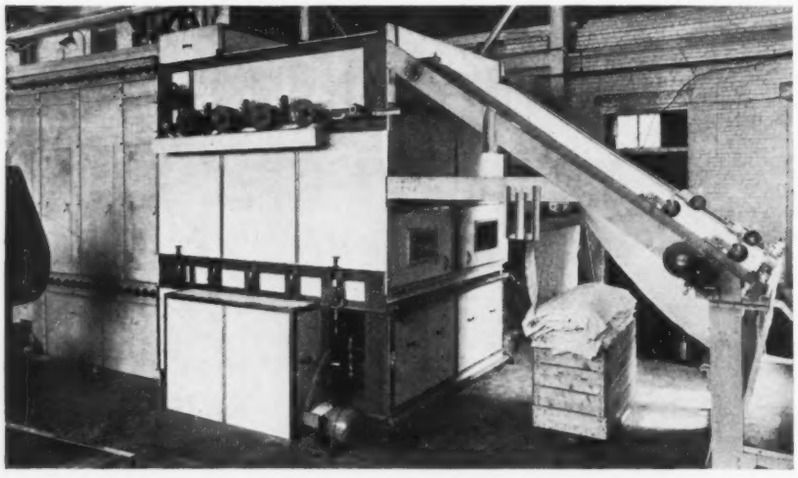
The new lamps are tubular light sources, 4 ft. in effective length. It is stated that probably their most outstanding feature is their high efficiency. Contrasting with the 100-watt bulb-type mercury lamps, for example, whose initial efficiency is 35 lumens per watt, the efficiency of the 100-watt fluorescent lamp is said to be 50 lumens per watt, or three times that of equivalent-wattage incandescent light sources.

The lamp derives its name from its utilization of a special high-efficiency fluorescent material as the inside coating of the tube. Ultraviolet radiations produced in the tube are converted by this coating to

visible light by means of a high ratio energy transformation. The rated life of the fluorescent lamp will compare favorably, it is stated, with that of other industrial light sources.

Cloth Tentering and Carbonizing Unit

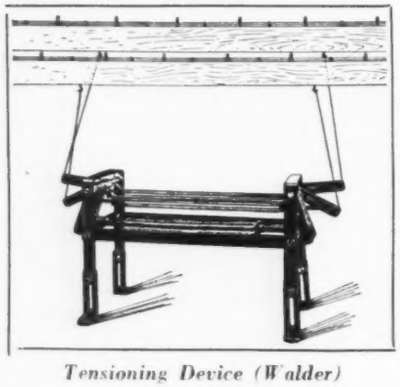
Riggs & Lombard, Inc., Lowell, Mass., has announced a new machine especially designed for piece carbonizing. Woolen or worsted cloth, wet with dilute acid, is run automatically through the tenter, which is equipped with an automatic guider and automatic stops. Then the cloth is stripped from the tenter pins and drawn through the baking or carbonizing unit, which consists of a machine of proper capacity to burn out the vegetable matter thoroughly. Approximately 45x13 ft. of floor space is required by this machine to dry and carbonize at the rate of 800 to 900 lb. per hr.



Tentering and Carbonizing Unit (Riggs & Lombard)

Harness Tensioning Device

The "Pulleasy" harness tensioning device for looms has been developed recently by Jacob Walder, 188 River St., Paterson, N. J. The machine action gradually increases the tension as the shafts are nearing the downward position, and releases the tension to a minimum as the shafts reach the upward point. It is designed to afford regulation of the tension of the shafts, in weaving either light or heavy fabrics. It is said that this attachment will assure light, smooth running of a loom regardless of how heavy the weave or how tight the warp. Some advantages are a saving in horsepower, less maintenance cost, increased production, and easier operation of the loom.



Tensioning Device (Walder)

Useful Accessories For Textile Mills

Lighting Fixtures. Miller Co., Meriden, Conn., has recently introduced a line of reflectors for use with fluorescent Mazda lamps. Models of single- and double-tube and concentrating and flood types are available.

Conveyor Drive. Mathews Conveyor Co., Ellwood City, Pa., has announced a new "floating drive" for conveyors. The mechanism can be located at any point along the length of a belt conveyor. Another desirable feature is that it is possible to locate the conveyor drive in or outside of a certain room or area or, even, within the confines of the conveyor frame itself. In installations of the latter type, the driving mechanism is located on a pivoted platform under the conveyor. The "free" end of the platform has a roller which rests on the conveyor belt and assures "maximum effective tension with minimum total belt tension."

Temperature Gages. Weston Electrical Instrument Corp., Newark, N. J., has introduced a line of industrial temperature gages in general-purpose and heavy-duty types. Features cited are that the gages are not affected by over-temperature over a wide range, are unaffected by vibration, are durable and easily read.

Storage-bin Level Control. Stephens-Adamson Mfg. Co., Aurora, Ill., has announced its "Tellevel," an automatic storage control. One of these controls is located near the top of the tank or bin; another is located near the bottom, and protected by a shield. When the bin becomes full or nearly so, the top control is tilted by the mounting contents of the bin: this actuates a switch which shuts off the supply. When the bin becomes nearly empty, the bottom control, which has been held in tilted position by the bin's contents, straightens and again starts flow of the material.

Hand Tachometer. A new hand tachometer, featuring a fixed reading device, and a dust- and moisture-proof housing is now being offered by O. Zernichow Co., 15 Park Row, New York, N. Y.

Chlorination Process. Specialties Engineering & Service Co., Inc., Hoboken, N. J., has developed a process of periodic chlorination for cleaning condenser tubes, heat exchangers, or other water-contact surfaces which are subject to sliming.

Strap Cutter. Signode Steel Strapping Co., 600 N. Western Ave., Chicago, recently introduced "Signips," a new, low-cost strap-cutting tool. The device is said to be so simple in design and economical in cost that one can be sent with each individual strapped shipment for the convenience of the person receiving the package. It is stated that many shippers, who previously were unable to use steel strappings for packages, due to a lack of strap-cutting equipment by recipients of shipments, can now use strapping of this type.

NEW CHEMICAL PRODUCTS

Ciba's New Series

Ciba Co., Inc., announces the development of a new series of dyes, designated Neocotone colors. The Neocotone colors are particularly suitable for printing on cellulosic fibers. The entire line is water soluble and may be fixed by a short steaming (not acid), followed by a treatment in a dilute caustic soda bath. The Neocotone colors are definitely stable in powder form, as well as in acid or neutral printing pastes. They are suitable for both direct printing and padding. Padded shades are dischargeable to a pure white and can be used as grounds for color discharges. The outstanding advantages of these colors

cited are: fastness to light; fastness to washing; do not require acid ageing; in printing, appear in the shade of the finished color, thus giving complete visibility without any sightener; can be used with aniline black; do not require the use of solubilized vat colors, but can be run with regular vat printing pastes; and all colors in series can be mixed to produce compound shades.

The first member of this series is Neocotone Scarlet G, which is suitable for application to all forms of cotton and viscose rayon. The resultant bright prints are of good fastness to light, washing, chlorine, perspiration, and crocking.

Other members of the series will be made available in the near future.

Du Pont Acid Black

E. I. du Pont de Nemours & Co., Inc., announces the following new product: Pontacyl Blue Black RC, an acid black of special interest for dyeing woolen piece goods containing viscose rayon effect threads, since it leaves rayon fibers white; it is also suitable for application to wool in all stages of manufacture; Pontacyl Blue Black RC is slightly redder in shade than Pontacyl Blue Black SX, but equal to it in strength and similar in fastness properties.

National Dyes

National Aniline & Chemical Co., Inc., announces the following new products: National Carbanthrene Direct Black RB Paste, a vat color, applicable to cotton, rayon, or silk, and yielding bloomy shades of black of very good and excellent all-round fastness; it does not require a hypochlorite after-treatment in order to develop the shade. National Erie Black NUG, a direct black of particular interest in dyeing cotton-wool union goods; it yields full black shades which can be after-treated with formaldehyde and acetic acid to increase the fastness. National Sulfur Red Brown RCF, a sulphur color producing warm, reddish tones intermediate in shade between the yellow browns and bordeaux; because of its good fastness to cross dyeing, it is suited for coloring warps for various union fabrics later to be cross dyed; it is low in copper content and is well suited for coloring fabrics that are to be rubberized.

General Colors

General Dyestuff Corp. announces the following new products: Benzo Fast Copper Blue FBL, a direct color giving an exceptionally clear blue shade; dyeings possess a high degree of fastness to light and good fastness to water, sea-water, washing, alkali, perspiration, stoving, hot pressing, and rubbing. Brilliant Discharge Blue G, an acid dye chiefly of interest for discharge prints on wool and silk; apart from the very good dischargeability on these fibers, it offers the advantage that the dyeings printed with the discharges do not change in shade during the steaming even in the ager, and white discharges do not develop a tint on exposure to light; the product can also be used for producing direct prints on wool and silk. Indanthren Brilliant Scarlet RK, powder-fine for dyeing, a homogeneous vat dye for cotton distinguished by exceptional purity of shade combined with good all-round fastness properties; in the case of rayon it is advisable to apply the product only for pale shades, as in deep dyeings a considerable delustering of the rayon occurs.

Metallic Soap for Fibrous Materials

A new metallic soap, known as Metasap 571, for use as a water repellent on fibrous materials, has been announced by Metasap Chemical Co., Harrison, N. J., a subsidiary of National Oil Products Co. The new product is designed to yield high concentrations of aluminum stearate in solvents and oils, in water-thin solutions which can be further diluted with almost any thinner such as toluol, Varsol, ethyl acetate, Stoddard solvent, etc. Solutions of Metasap 571 can be brushed or sprayed, or the material to be treated can be dipped in the solution with equal effectiveness.

NEW PUBLICATIONS

The Trade Association

TRADE ASSOCIATIONS IN LAW AND BUSINESS; by Benamin S. Kirsh and Harold Roland Shapiro; Central Book Co., New York; $5.00.

This splendid book which analyzes the work of trade associations should be on the desk of every association official. The authors have studied carefully the possible services of trade associations and they go into a comprehensive analysis of each of these services, backing up their comment with citations from court decisions relative to every problem presented.

By carefully studying the various chapters a trade association official is enabled to get first-hand knowledge on all danger points wherein association work may come in conflict with the laws of the land.

While this book was primarily prepared, as it seems evident, for trade association executives it is worth-while reading for the members of such associations as well as for those of the legal profession. It is a scholarly work and a valuable book from every standpoint, particularly today in view of the anti-monopoly probe.

Cotton Primer

THE A.B.C. OF TEXTILES; VOL. I., COTTON; G. P. Blackiston, Steel Heddle Mfg. Co., Philadelphia.

This 40-page booklet was prepared as an aid to those interested in acquiring a broader knowledge of textile manufacturing in the shortest possible time. It discusses briefly the major operations involved in the conversion of raw cotton into finished woven fabrics. A feature is a large number of diagrammatic sketches of cotton manufacturing machinery. Included also are descriptions of Stehedco heddles, harness frames, and reeds. The booklet is priced at $2 a copy.

Chemists and Colorists Yearbook in New Edition

YEAR BOOK OF THE AMERICAN ASSOCIATION OF TEXTILE CHEMISTS & COLORISTS, 1938; Howes Publishing Co., Inc., 440 Fourth Ave., New York; $3.

This annual yearbook has become so well known in the textile dyeing, printing, and finishing industry that no review of the 15th edition is needed. Several sections have been revised, including that on official and tentative A.A.T.C.C. test methods.

Useful Reference Data in Textile World Yearbook

TEXTILE WORLD YEARBOOK AND CATALOG 1938; Textile World Publications, McGraw-Hill Publishing Co., Inc., 300 West 42nd St., New York.

The three previous editions of the combined Textile World Yearbook and Catalog have established enviable records as well-balanced reference books of value to mill men in all branches of the industry. In the 1938 edition all charts, tables, etc., have been revised and brought up to date where necessary, and considerable new data have been added. The first section, on new equipment and chemicals, has been entirely rewritten to include items described in TEXTILE WORLD

from May 1, 1937 to May 31, 1938. The second section, containing mill reference data, has been enlarged. In other sections of the Yearbook are given chemical tests for textile men, lists of all known textile standards adopted by official bodies, statistical data on textile prices and activity, a directory of trade associations, a bibliography of textile books, and an index to TEXTILE WORLD for 1937.

The catalog section contains insertions by leading manufacturers of textile machinery, mill engineering equipment, mill supplies and accessories, dyes and chemicals, etc.

Following the catalog section are an index of machinery, equipment, and supply manufacturers; and buyers' guides of textile machinery, equipment, textile chemicals, and supplies.

A copy of Textile World Yearbook is sent free to mills listed in Official American Textile Directory and additional copies for any of these mills is charged at $2.50 per copy if ordered on company letterhead. To all others it is sold at $5 per copy.

NEWS OF SUPPLIERS

A. M. Tenney, of A. M. Tenney Associates, Inc., agent for Tennessee-Eastman Corp., discussed new developments in acetate rayons at a meeting of the Arkwright Club, held Nov. 29, in New York. Among the more recent developments described by Mr. Tenney are included Tecca, an acetate rayon staple having a permanent crimp; discontinuous-filament acetate yarns made by the Perlok process; and spun-dyed black acetate yarns. Mr. Tenney displayed a large number of fabrics composed in whole or in part of acetate yarns, including fabrics made from viscose rayon staple to which has been added a small percentage of acetate rayon staple for the purpose of increasing resiliency and resistance to crushing.

H & B American Machine Co., Pawtucket, R. I., has recently acquired an interest in the Industrial Machine Corp., 1450 Broadway, New York. The latter company controls the patents on Federal throwing machines for silk and rayon, which were introduced to the trade about two years ago. The principal feature of this equipment is that it doubles, twists and cones in one continuous operation. Sales agency for Federal machines remains at the New York office of Industrial Machine Corp.

J. Timothy O'Hara has opened an office at 620 East 43d St., Brooklyn, N. Y., to act as manufacturers' agent for testing machines and as technical consultant to his clients. He represents 12 instrument manufacturers and is prepared to recommend the machine best suited for a purpose while at the same time offering all devices in his group fitted for that particular test. Mr O'Hara was formerly salesmanager of Amthor Testing Instrument Co.

Steel Heddle Mfg. Co., Philadelphia, was founded 40 years ago, in a small shop in Germantown, Pa. Now with four large plants in Philadelphia, Greenville, Atlanta, and Montreal, the company, which has grown to be the largest in its field, is celebrating its 40th anniversary.

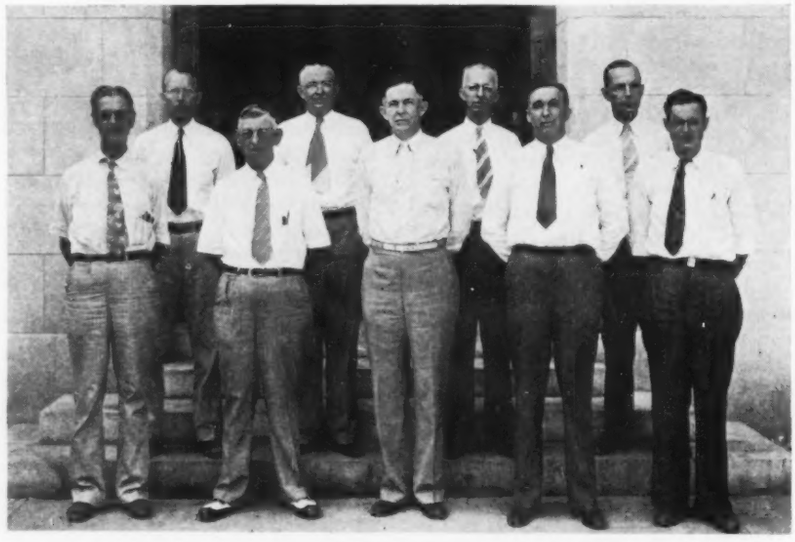
Oakite Products, Inc., New York, recently held two-day technical sales conferences under guidance of its various service divisions, in different territories, to keep users of Oakite materials acquainted with new developments and improvements that apply to their processing or plant maintenance cleaning operations. Subjects discussed included: cleaning heddles; cleaning dye-vat ventilators; removing lime, slime and algae deposits from humidifying equipment; and cleaning top rolls before recovering.

Manhattan Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J., observed its 45th anniversary Oct. 28. When in the planning stage in 1893, the company was known as the Knickerbocker Rubber Mfg. Co. It was changed to Manhattan Rubber Mfg. Co. in October of that same year. Frank Cazenove Jones, the first president, planned the company. He retired in 1903 because of ill health and was succeeded by Col. Arthur F. Townsend, who served as president up to the merger in 1929 which formed Raybestos-Manhattan, Inc., of which he has since been chairman of the board, and general manager of the Manhattan Division.

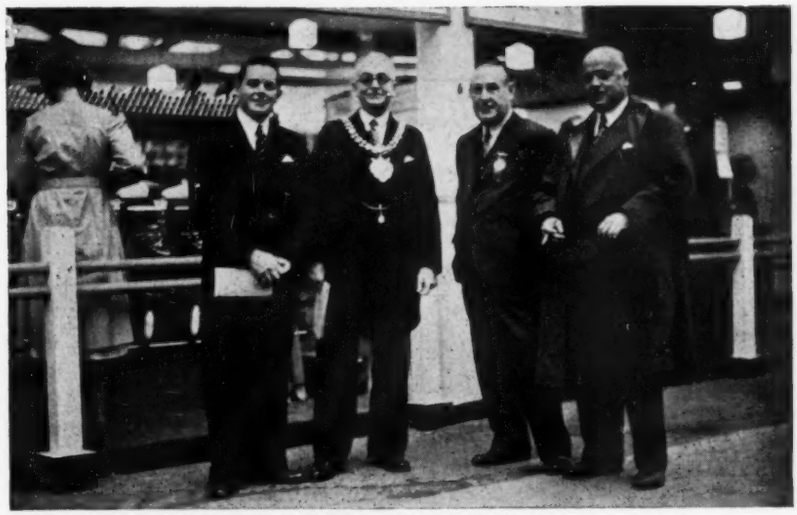
Textile Academy, 350 Broadway, New York, offers a home-study course in textiles. Graduates of textile institutes and colleges who are active in the converting trade, the primary market or as engineers, constitute the faculty. Arnold Rosenthal is the director. The course of instruction includes: Fiber identification, fabric analysis, fabric identification, cotton, rayon, wool, silk, etc.

Westinghouse Electric & Mfg. Co. has appointed W. H. Rodgers as engineering manager of the Eastern District. He succeeds R. E. Powers, who has been appointed Northwestern District service manager.

A. M. Tenney, who spoke at Arkwright Club, New York, Nov. 29.



WHEN THE NEW Textile Building at Clemson (S.C.) College was opened, the Building Inspection Committee comprised a number of men who are prominent figures in the industry. Front row, left to right: Mr. Huey, P.W.A.; J. E. Sirrine, president, J. E. Sirrine & Co., engineers and architects; J. C. Littlejohn, business manager of Clemson College; C. E. Daniel, president, Daniel Construction Co.; and Ed. Moore, foreman for Daniel Construction Co. Back row, left to right: B. A. Morgan, J. E. Sirrine & Co.; H. H. Willis, Dean of Clemson Textile School; L. W. Burdette, and George Morgan, both of J. E. Sirrine Co.



SNAPPED BESIDE the booth of Universal Winding Co., at recent Textile Machinery Exhibition in Manchester, Eng., Oct. 12 to 22. The operative, whose back is to the camera, is standing beside the No. 44 type winder. The others, left to right, are: Mr. Adcock, Town Clerk of Manchester; Sir William Kay, J. P., Lord Mayor of Manchester; Frank Nasmith, executive director for United Kingdom of Universal Winding Co. and chairman of the board of the exhibition; E. O. Smith, senior vice-president of Universal Winding Co., Boston, Mass.

David Jones, now representing Emmons Loom Harness Co. in the South

Emmons Loom Harness Co., Lawrence, Mass., has added to its staff David Jones, formerly superintendent of Judson Mills and of Drayton Mills. He will represent Emmons in the South, principally in South Carolina.

Taylor Instrument Cos., Rochester, N. Y., announces the election of Lewis B. Swift to the presidency of the organization succeeding Herbert J. Winn who has been made chairman of the board. Mr. Swift, who has been vice-president in charge of engineering and research, joined the firm in 1904. In 1919 he organized and headed the Sales Engineering Dept. In 1929 he became chief engineer, and in 1934, vice-president. Mr. Winn, retiring president, joined the company in 1893. He has been president and treasurer since 1913. Karl H. Hubbard has been appointed chief engineer in charge of engineering research and design, and Dr. H. L. Mason succeeds him as head of the Research Division.

Impregnole Co., New York, played host to a meeting of the alumni chapter of the Sigma Phi Tau Fraternity on Nov. 4. Charles M. Hayman, general manager, described the one-bath, water-repellent, Impregnole as applied to textile fabrics of all fibers. The meeting is one of a series planned by the fraternity.

Arnold Hoffman & Co., are now represented in New York by Leonard G. Tubbs, 350 Madison Ave. Mr. Tubbs had charge of all purchases for the United States Finishing Co. from 1927 to 1930, and from 1930 to 1937 he acted in a similar capacity for National Dyeing & Printing Co. He was recently assistant to the president of John Campbell & Co.

Crane Co., Chicago, Ill., held an open-house at its Chicago works last month, inspired by a notable expansion in its research and engineering program. The laboratory was the center of interest, occupying a floor space of 86,000 sq. ft. and engaging a personnel of 285. Chemical and physical laboratories are maintained; also a photographic laboratory and a large library. Outside of these research facilities, there are also chemical and physical works-laboratories which exercise control over raw materials and manufacturing operations.

Carbic Color & Chemical Co., New York, has transferred Thorwald Larson from the Providence, R. I., office to Charlotte, N. C., where he will be associated with John L. McKee, southern manager. Mr. Larson will serve the southern territory as technical adviser.

Victor Chemical Works, Chicago, is taking additional office space in Chicago's Board of Trade Building. Their three plants are operating day and night.

Riggs & Lombard, Lowell, Mass., have appointed Harold C. Osler to take over the Middle Atlantic territory of his brother, the late Charles L. Osler, who died on Sept. 25. His headquarters will be at 6312 Sherwood Road, Philadelphia. As in the past, Harold Osler will also be in charge of the Western territory of Riggs & Lombard, with office at 925 Montrose Ave., Chicago, Ill.

Glyco Products Co., New York, announces that Leonard Levitt of its sales department, has established headquarters in Philadelphia, at 49 East Clivenden St., to service users of emulsifying agents, water-soluble resins, flameproofing and waterproofing agents, polishes, detergents, etc.

American Aniline Products, Inc., have added James L. McIntyre to the staff of their Charlotte, N. C., dyestuff laboratory.

Monsanto Chemical Co., St. Louis, Mo., has appointed R. R. Cole of Anniston, Ala., as production manager of its phosphate division. He will have charge of phosphate division operations in Anniston, Columbia (Tenn.) and Camden (N. J.).

Osborn Mfg. Co., Cleveland, Ohio, has purchased the assets of the Johns Conveyor Corp., Newark, N. J., and obtained the exclusive patent rights to manufacture and sell this conveyor in the United States and its possessions. Operations are being moved to Cleveland. Harry S. Johns, the inventor, will be Chief Engineer of Johns Conveyor Division of Osborn Mfg. Co.

Anchor Hocking Glass Corp., Lancaster, Ohio, has set up a new Industrial Division to cooperate with manufacturers in adaptation, design and use of glass products.

Combustion Engineering Co., Inc., has opened its own branch office in Birmingham, Ala., at 516 Martin Bldg., under the direction of J. B. Emory as district manager, assisted by W. E. Johnson.

J. W. Long, Jr., who has just completed a four-year training course with the Norlander Machine Co., Gastonia, N. C., has been appointed as their representative in Georgia, Alabama, Mississippi and Tennessee.

Rayon Mfg. Co., Fairfield, Conn., has incorporated with an authorized capital of $50,000 to manufacture machines for the rayon industry, using patents held by Julius Brenzinger and Max Ams. Officers are: President, Julius Brenzinger; vice-president, Max Ams; secretary-treasurer, George W. Meder. Space for manufacturing has been obtained from the Max Ams Machine Co. in their plant on Scofield Avenue.

TEXTILE WORLD ANALYST

TEXTILE WORLD'S index of textile mill activity for October was 15% above that for October 1937. This was the first month this year that went above the corresponding month last year. Other indications of the improved situation in textiles were: Cotton consumption in October was above the corresponding month last year for the first time this year; wool consumption has been above 1937 for each month beginning with July through October; silk deliveries in November were the highest in nearly two years; average monthly rayon consumption during the four months July-October was 85% above the monthly average for the first half of the year. . . . Despite the improvement, the total activity for the first 10 months of this year is 26% below that for the corresponding period of last year—although only 3% below a "normal" year. It is probable that by the end of the year the differential between 1938 and 1937 will be reduced to about 20%.

TEXTILE WORLD'S compilation of manufacturing margins on carded cotton fabrics and yarns for November showed a decline for the former and an advance for the latter. (Tables I and II.)

TEXTILE WORLD'S price index numbers for November show advances in the raw cotton and cotton yarn, but no change in cotton cloths; advances in all members of the wool series; and no change in rayon or silk.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	21.4	October, 1937.	17.3
October, 1933..	19.1	January, 1938.	16.2
January, 1934.	18.4	February, 1938	16.2
April, 1934....	17.6	March, 1938...	16.1
July, 1934....	15.5	April, 1938...	15.9
October, 1934..	17.4	May, 1938....	15.9
January, 1935.	16.2	June, 1938....	15.2
April, 1935....	16.1	July, 1938....	16.5
July, 1935....	15.2	August, 1938..	15.6
October, 1935.	17.7	September, 1938	15.2
January, 1936.	17.2	October, 1938	15.2
April, 1936....	14.3	November, 1938	14.7
July, 1936....	16.9	Nov. 2...	14.8
October, 1936..	21.2	Nov. 9...	14.7
January, 1937.	28.6	Nov. 16..	14.5
April, 1937....	25.9	Nov. 23..	14.7
July, 1937....	20.1	Nov. 30..	14.7

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933..	23.5	October, 1937.	15.3
October, 1933.	20.0	January, 1938.	13.5
January, 1934.	18.3	February, 1938	12.9
April, 1934...	15.9	March, 1938..	12.9
July, 1934....	14.6	April, 1938...	12.7
October, 1934..	14.6	May, 1938....	12.8
January, 1935.	13.5	June, 1938....	12.9
April, 1935....	14.1	July, 1938....	13.3
July, 1935....	14.3	August, 1938..	15.6
October, 1935.	15.8	September, 1938	13.7
January, 1936.	18.4	October, 1938.	14.0
April, 1936...	15.6	November, 1938	14.3
July, 1936....	15.0	Nov. 2...	13.9
October, 1936.	17.2	Nov. 9...	14.3
January, 1937.	20.8	Nov. 16..	14.1
April, 1937....	22.6	Nov. 23..	14.3
July, 1937....	17.8	Nov. 30..	14.8

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923–25 base, to correspond with current statistical practices. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

Date	Cotton Index Numbers: Cotton	Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Silk Index Raw-Silk	Rayon Index
1923-25	100	100	100	100	100	100	100	100	100	100
1930 ave.	50	61	61	72	58	61	72	90	109	46
1931 ave.	32	68	46	59	46	49	59	71	32	32
1932 ave.	24	37	37	60	36	40	52	57	21	28
1933 ave.	39	56	55	50	53	59	62	80	21	26
1934 ave.	61	67	70	62	63	70	75	91	17	25
1935 ave.	60	68	67	69	56	58	70	88	22	24
1936 ave.	45	63	63	68	72	78	76	93	23	25
1937 ave.	42	65	67	74	79	82	85	107	25	27
Jan. 1937	48	73	81	76	90	93	88	108	27	26
Feb. 1937	48	74	78	76	90	92	90	108	27	26
Mar. 1937	53	78	80	78	87	88	90	112	27	26
Apr. 1937	53	80	82	80	84	86	90	112	27	27
May 1937	49	75	76	78	82	84	89	112	24	27
June 1937	47	70	71	78	78	82	88	112	25	27
July 1937	45	65	67	78	78	82	88	112	26	27
Aug. 1937	37	59	62	78	80	82	88	112	25	27
Sept. 1937	33	54	56	73	78	81	87	107	25	27
Oct. 1937	31	51	53	67	73	76	82	100	23	27
Nov. 1937	29	48	50	61	66	68	74	97	22	27
Dec. 1937	30	47	49	60	60	64	70	97	21	27
Jan. 1938	32	47	49	62	57	63	68	97	21	26
Feb. 1938	33	47	50	62	53	60	67	97	22	23
Mar. 1938	33	47	50	62	51	58	66	88	22	23
Apr. 1938	32	46	49	62	51	57	66	80	22	23
May 1938	31	46	48	62	50	57	64	80	21	22
June 1938	31	45	47	61	49	57	64	80	21	21
July 1938	33	48	50	57	53	59	64	80	24	21
Aug. 1938	31	48	48	53	56	59	64	80	23	22
Sept. 1938	30	47	47	53	52	58	64	80	23	22
Oct. 1938	32	48	48	53	54	60	65	81	24	22
Nov. 1938	34	50	48	53	56	61	66	83	24	22

Key cotton prices with usual comparisons follow:

	Dec. 1, 1938	Nov. 1, 1938	Dec. 1, 1937	Dec. 1, 1936
Spot Cotton, N. Y.	8.95	9.01	8.00	12.58
Ditto, high previous month	9.36	9.01	8.22	12.43
Ditto, low previous month.	8.87	8.25	7.79	12.08
10s hosiery cones	19	19	18½	28½
10s/2 carded skeins	19½	19	18½	28½
20s/2 carded peeler warps.	22½	22	21	32½
60s/2 combed peeler warps	48	49	48½	60
60s/2 mercerized cones	63	63	63	72
37 in., 3-yd. drill	6½	6½	7	9½
38½ in. 64 x 60s	4½	4½	4¾	7⅞
36-in. 4-yd. 56 x 60s	5½	5⅞	5½	8½
Denim, 2.20s	10½	10½	12	15

Key silk prices and statistics follow:

Prices	Dec. 1, 1938	Nov. 1, 1938	Dec. 1, 1937	Dec. 1, 1936
Crack XX 13/15 wh. 78%.	$1.75½	$1.75	$1.58½	$2 05
Tram, 5thd Japan 85%..	2.46	2.52	2.31	2.90
Tram Crack XX 78%...	2.39	2.45	2.18	2.65
60s-2, spun silk	3.00	3.00	3.15	2.95

Statistics (in bales)	Imports	Approximate deliveries	Stocks at warehouses
November, 1938	44,006	41,599	46,218
October, 1938	38,731	35,631	43,811
September, 1938	39,808	38,844	40,711

Key wool prices with usual comparisons follow:

	Dec. 1, 1938	Nov. 1, 1938	Dec. 1, 1937	Dec. 1, 1936
Fine and fine med. territory	$0.67	$0.66	$0.77	$1.02
Ohio ⅜s	.34	.33	.35	.47
Tops fine 64-66s	.90	.90	.96	1.30
Average ⅜s	.78	.78	.80	1.10
High ½	.72	.72	.75	1.02
Noils, fine ⅜	.56	.58	.60	.75
	.44	.45	.48	.60
2-40s 60s wstd yarn.	1.37½	1.37½	1.50	1.75
2-32s 56s wstd yarn.	1.17½	1.17½	1.30	.....
8020 serge	1.75	1.70	2.00	2.05

Key rayon prices and statistics follow:

Prices	Dec. 1, 1938	Nov. 1, 1938	Dec. 1, 1937	Dec. 1, 1936
Viscose process				
75 denier (18-30 fils.).	$0.74	$0.74	$0.93	$0.90
100 denier (40 fils.)	.68	.68	.82	.79
150 denier (40 fils.)	.51	.51	.63	.60
Acetate process				
150 denier	.54	.54	.63	.60
Cupra. process				
150 denier (112 fils.)	.52	.52	.68	.65
Rayon staple 1½, 3 and 5½ denier (viscose)	.25	.25	.25	

Indices of Rayon Deliveries*

Statistics**	Nov.	Oct.	Sept.
In year 1938	578	689	874
In year 1937	253	366	562

* Rayon Organon. ** Exclusive of Acetate. Daily average 1923-25 = 100.

Statistics concerning cotton-mill operation and the raw cotton situation:

	Oct.	Sept.
Spindle activity (% activity)	81.9	72.8
Spindle activity (millions of hours).	7,118	6,613
Cotton consumed (bales)	542,778	534,037
Cotton exported (bales)	464,590	388,658
Cotton imported (bales)	10,933	10,631
Cotton ginned (prior Nov. 14)	10,751,758 bales	

Rayon fabric shipment index reported by the National Rayon Weavers Association and the National Federation of Textiles, follows:

	Oct. 1937	Sept. 1938	Oct. 1938
Taffetas, twills, linings and other staples	176	253	266
Dress goods, novelties and other fancies	62	105	89
Total	100	154	151

Current statistics on wool consumption and mill activity:

	October (weekly average)	September (weekly average)
Woo lconsumed, clean equiv		
Apparel wool, lb	4,924,000	4,905,000
Carpet wool, lb	1,732,000	1,597,000
Machinery activity (40 hr. shift)		
Looms (50 in. and wider)	77.0%	77.2%
Carpet looms	59.1%	58.1%
Combs	115.1%	112.3%
Worsted spindles	81.4%	72.7%
Woolen spindles	90.9%	89.7%

THE PERSONAL PAGE

H. CLYDE MOORE, president of the Colonial Wool Co., Boston, who has been elected president of the Boston Wool Trade Association. Mr. Moore's career embraces connections of three years with the Arlington Mills, Lawrence, Mass., eight years of sales activity with Eisenmann Bros., Boston, and seventeen years with the Colonial company. He was one of the organizers of the last-named company in 1921, serving as its treasurer until 1926 and from then as president. He is a native of Malden, Mass.

John P. Stevens, Jr., J. P. Stevens & Co., New York, has accepted the chairmanship of the Women's Woolens Division of the New York and Brooklyn Federations of Jewish Charities.

Joseph Pollack, of Max Pollack & Co., New York, the retiring president of the Cotton Thread Institute, has been elected chairman of the board of that Institute. **David Snyder** has been elected as executive director and secretary. **C. E. Chaffin,** of Bay State Thread Works, Springfield, Mass., was elected treasurer. The offices of president and vice-president have been discontinued.

E. J. McMillan, president of the Standard Knitting Mills, Knoxville, Tenn., was elected president of the Southern States Industrial Council, composed of industrialists, bankers and business men from 15 southern states, at its annual meeting in Atlanta, Nov. 28, succeeding Fitzgerald Hall, of Louisville, Ky.

George A. Cornelson has been elected vice-president and assistant secretary of Spartan Mills, Spartanburg, S. C. **Walter S. Montgomery** was re-elected president.

William H. Markward is president of the newly organized firm of textile agents, Super-Tone, Inc., New York. **J. E. Pottinger** is vice-president and treasurer, with offices at 183 Madison Ave.

W. S. Nicholson has been elected treasurer and manager of the Darlington (S. C.) Mfg. Co., succeeding **Alan B. Sibley,** who is being transferred to the Judson Mills at Greenville, S. C. Mr. Nicholson will continue to make his home in Union, S. C., where he is treasurer of Excelsior Mills, but will give part of his time each week to managing the Darlington company.

Harold J. Walter, treasurer of the Uxbridge (Mass.) Worsted Co., was elected president of the Home Market Club at its 50th annual meeting last month. Many textile men are included in the vice-presidents, executive committee, and directors of the club.

John R. Illingworth, former president of Rayon and Silk Printers Association, Paterson, N. J., has joined United Piece Dye Works as general sales manager of the printing division with headquarters at the New York office.

R. E. Caffray has been appointed general superintendent of Pacific Mills' Print Works, Lawrence, Mass., succeeding **A. E. Hirst,** resigned. Mr. Caffray has been superintendent for several years.

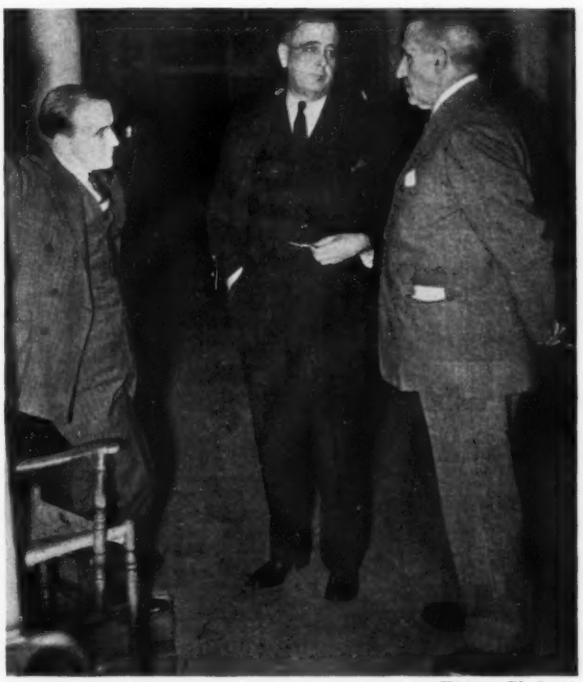
Franklin D'Olier, a former textile executive as head of the yarn firm of Franklin D'Olier & Co., Philadelphia, who has been associated with the Prudential Life Insurance Co. for some years, has been elected president of that company.

J. P. Margeson, formerly vice-president and general manager of the manufacturing division of Marshall Field & Co., and previously vice-president of Phoenix Hosiery Co., has become associated with Booz, Fry, Allen & Hamilton, management engineers, Chicago.

Charles J. Goldsmith has resigned as president of Carnac Cottons, Inc., New York.

Henry Janssen, treasurer, Berkshire Knitting Mills, Reading, Pa., was last month re-elected president of the board of managers of the Reading Hospital.

William E. Smith has joined Murray Fabrics Corp., New York, as sales representative, after 18 years association with Mallinson Fabrics Corp.



Hemmer, Pinehurst

DISTINGUISHED visitors at the Pinehurst convention of Cotton Mfrs. Assn. of North Carolina included (left to right) Harry L. Dalton, southern manager of American Viscose Corp., Charlotte; S. Clay Williams, chairman of the board of R. J. Reynolds Tobacco Co., principal speaker at the meeting; George W. Fraker, vice-president of National City Bank, New York, and director of Cannon Mills Co. (see story, page 59).

SAUL F. DRIBBEN has been elected president of the Cone Export & Commission Co., New York, succeeding Julius W. Cone, who was made chairman of the board. Mr. Dribben has been vice-president of the company for some years. Clarence M. Guggenheimer, formerly treasurer, is now first vice-president; Benjamin Cone, formerly second vice-president is now treasurer; Herman Cone, president of the Proximity Mfg. Co., is second vice-president; Caesar Cone is the new assistant treasurer.

James H. McGraw, Jr., president of McGraw-Hill Publishing Co., New York, has been elected to the board of directors of the American Arbitration Association.

Lincoln Godfrey, treasurer of William Simpson Sons & Co., New York, and associated with that organization for over 25 years, has resigned.

Harry G. Kennedy, formerly with Southeastern Cottons, Inc., has been made agent for the Pilot Mills Co., New York. He succeeds **H. J. Barwood** who has joined Iselin-Jefferson Co.

Sidney Lewis has resigned from the United States Finishing Co. to join Heineman & Seidman, cloth brokers, New York.

W. B. Carden, assistant superintendent of the Goodyear Co., St. Hyacinthe, Quebec, for the last 12 years, is now general superintendent of the spinning division of Lewis Ltd., Truro, Nova Scotia.

Robert M. Hanes, vice-president of Indera Mills Co., Winston-Salem, N. C., and president of the Wachovia Bank & Trust Co. there, has been elected vice-president of the American Bankers Association.

Fred West has been elected to the board of directors of the Abbeville (S.C.) Cotton Mills,

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succeeding the late W. P. Greene.

O. C. Moore, of Polly Prentiss, Inc., Sumter, S. C., has been elected president of the Tufted Bedspread Manufacturers' Association.

Victor Lipscomb has been elected to the board of directors of the Gaffney (S.C.) Mfg. Co.

H. B. Jennings, retired president of Mansfield Cotton Mills, and Jennings Cotton Mill, Lumberton, N. C., scored a hole-in-one on the Lumberton golf course recently.

Marvin Ferrell, who organized the Marlee Hosiery Mills, now being established at Gibsonville, N. C., was formerly a departmental superintendent at the Mock-Judson-Voehringer Co., Greensboro, N. C.

Fred L. Smyre of Gastonia, N. C., is the newly elected president and treasurer of Locke Cotton Mills Co., Concord, N. C.

J. B. Reeves, secretary and treasurer of Ranlo Mfg. Co., Gastonia, N. C., has resigned because of ill health and will take an extended vacation at his old home near Charleston, S. C.

James G. Hanes, president of Hanes Hosiery Mills Co., Winston-Salem, N. C., has been elected county commissioner.

J. Chadborne Bolles, assistant trust officer of the American Trust Co., Charlotte, N. C., resigned to accept the post of president, treasurer and general manager of the Rufus D. Wilson, Inc., hosiery manufacturing company, Burlington, N. C. He assumed his new duties Nov. 1. He succeeded Rufus D. Wilson, who died Sept. 10.

Martin Moesel has become president of the Piedmont Knitting Mills, Inc., Gordonsville, Va.

I. L. Langley has been appointed vice-president in charge of the southern mills of Consolidated Textile Co., Inc., which recently took over the assets of Consolidated Textile Corp.

Arthur B. Cooke, recently resigned from the Callaway Mills selling organization, will open offices at 1450 Broadway, New York where he will represent the Athens (Ga.) Mfg. Co., beginning Jan. 1.

Fred S. Gilley, who has been developing sports fabrics for women's wear on the Botany Worsted Mills staff, has resigned that connection to continue the same kind of work under his own name at 51 Madison Ave., New York.

George R. Bryan has become sales manager of the gray goods department of the Cabot Mfg. Co., with offices in New York.

R. H. ADAMS, formerly chief tester of the Callaway Mills, LaGrange, Ga., having retired from active duty, has been honored by the American Society for Testing Materials, by being given a life membership in the textile division, Committee D-13. This honor has been conferred by the textile division upon only one other man. Mr. Adams became a member of the Society in 1919, is a former vice-chairman and has served on numerous subcommittees during his 19 years as member.

Royal Burch, formerly with H. A. Caesar & Co., has become credit and office manager for Ardsley Textile Sales Co., New York. He succeeds **Harry Steinman** who resigned to join M. Garfinkel & Sons.

Herbert Hardenbergh, for 17 years with Julius Forstmann Woolen Co., has joined the women's wear department of Botany Worsted Mills, New York.

Roy C. Lathers is now representing the Buscher Yarn Division of Turner Halsey Co. in Pennsylvania and New York State, making his headquarters in Philadelphia.

Irving Roth has resigned as secretary and treasurer of the Lyons Textile Print Corp., Emaus, Pa.

Charles Jordan and **Richard Fox** have joined the selling organization of Clarence S. Brown & Co., New York.

J. Wareck, formerly sales manager for the silk and rayon manufacturing division of Marshall Field & Co., has become sales manager for William Cohen Fabrics Corp., New York.

John Sharp and **Joseph Death** have formed the partnership of Sharp & Death to handle wool tops and noils on the Philadelphia market.

Edward Anderson, formerly general superintendent of the W. H. Davey Steel Co., Cleveland, has been appointed employment manager at the Painesville, Ohio, plant of Industrial Rayon Corp.

James O. Thompson, Jr., manufacturing agent of the New Bedford (Mass.) Cotton Mills Corp. and connected with it since 1909, has resigned. He will continue with the organization as consultant. He was at one time superintendent of Wamsutta Mills and later of Wampanoag Mills of Fall River. He has been secretary of the board of trustees of the New Bedford Textile School for the last 21 years.

W. L. Steele, Jr., secretary-treasurer of Locke Cotton Mills, Concord, N. C., has resigned.

J. C. J. Strahan, of New York, will be manager of the new full-fashioned hosiery mills at Green Cove Springs, Fla.

George K. Tate has relinquished his duties as superintendent of McAden Mills, McAdenville, N. C., and has become assistant manager of the Gastonia, N. C., office of the North Carolina State Employment Service, in charge of the industrial division, mostly in the textile department.

JOHN BLACK, for ten years assistant editor of Textile World, with special reference to market developments, who resigned Dec. 1 to join the publicity division of J. M. Mathes, Inc., advertising agency, New York, in particular association with the American Viscose Corp. account.

R. C. Harrington is now technical assistant to H. Gordon Smith, general manager of United States Rubber Products, Inc., tire cord department, and not general superintendent as incorrectly stated in these columns last issue.

Hugh M. Comer, a recent graduate of the Harvard Business College, has become associated with the main offices of the Bibb Mfg. Co., Macon, Ga.

W. T. Cothran, secretary and treasurer of the newly organized Shannon Hosiery Mills, Inc., Columbus, Ga., will come to Columbus to live at an early date. He is now connected with the T. C. Allen interests in Birmingham, Ala.

V. C. Adams has been appointed overseer of the cloth room at the Pacolet Mfg. Co., New Holland, Ga. He formerly held another position in the mill.

D. R. Senn has resigned as general superintendent of the Sibley-Enterprise Mfg. Co., Augusta, Ga.

W. W. Harris, Jr., formerly with Sanford (N.C.) Cotton Mills, has joined the Shelbyville (Tenn.) plant of the United States Rubber Products, Inc., and will serve as superintendent of spinning on the third shift.

R. A. Groves has become superintendent of the Marion, N. C., plant of Elizabeth James Hosiery Mills No. 2. He was formerly associated with the Wiscassett Mills, Albemarle, N. C.

R. Rostron, overseer of the cloth room of Alabama Mills, Inc., Wetumpka, Ala., plant, has resigned.

Ernest Rhettberg is manager and superintendent of the new Aberdeen (N.C.) Hosiery Mills, now being established.

Richard K. Mitchell is now superintendent of Broad Brook (Conn.) Co., makers of automobile upholstery. He assists **William C. Damon,** general manager. The plant is working three six-hour shifts, five days weekly.

J. H. Lott has become assistant to the superintendent of the weaving department of Santee Mills, Bamberg, S. C. He is a graduate in plain and fancy weaving from the I.C.S. school.

Edwin L. Head has resigned as superintendent of night weaving at Springstein plant of Springs Cotton Mills, Chester, S. C., and joined the Trion (Ga.) Co. **James Jackson** succeeds Mr. Head.

Robert Nathan Golub, graduate of the New Bedford (Mass.) Textile School, class of 1938, has joined the Crystal Spring Bleachery, Assonet.

BERNARD J. O'REILLY, Lowell, Mass., elected president of National Assn. of Woolen & Worsted Overseers.

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Mass., in the dyeing and scouring department.

Charles D. Green, superintendent of the Mills Mill, Woodruff, S. C., has been appointed general manager of the Laurens (S.C.) Mills. He is succeeded by **John Reeves.**

John M. Burnett, for 10 years with the Skowhegan (Me.) plant of American Woolen Co., has resigned to join the Hayward-Schuster Co., East Douglas, Mass., as supervisor of women's wear in five mills in that vicinity.

R. L. Crump is superintendent of the newly-organized Carolina Process Co., Mount Holly, N. C., which will do commercial processing of all types of yarns. The new concern succeeds Carolina Dyeing & Winding, Inc.

Robert Folkman has resigned as superintendent of Nebel Knitting Co., Inc., Charlotte, N. C., and has become connected with the Hugh Gray Hosiery Mills, Concord, N. C., in same capacity. He is succeeded by **Ernest Cuthbertson.**

Obituary

David R. Coker, 68, outstanding plant breeder and cotton expert, died in his home at Hartsville, S. C., Nov. 28. He was the originator of staple cotton varieties planted widely in the United States and elsewhere, and was regarded as one of the leading authorities on raw cotton in the world. He was president of J. L. Coker & Co., merchants, and of Coker's Pedigreed Seed Co., and a partner in Coker Cotton Co. He was a trustee and benefactor of Coker College at Hartsville. Surviving are his widow, the former Margaret May Roper, daughter of Secretary of Commerce Daniel C. Roper, and six daughters.

John W. Arrington, Sr., 72, president of Union Bleachery, Greenville, S. C., died Nov. 12. He was a native of Warrenton, N. C. Before 1890 he was treasurer of the Old Dominion Cotton Mills, Richmond, Va. In 1895 he built the Edna Cotton Mills, at Reidsville, N. C. In 1904 he went to Greenville where he took over the then struggling bleachery and made a prosperous enterprise out of it.

William G. Leininger, 74, president and treasurer of the William G. Leininger Knitting Co., Mohnton, Pa., died Nov. 14. He started in the hosiery business in 1896. The first plant which Mr. Leininger headed himself was started in 1907. His present organization operates seven hosiery plants and a silk throwing mill.

Joseph W. Lacouture, superintendent of the Alsace Mill, Woonsocket, R. I., died recently.

Charles W. Emerson, 61, who retired five years ago as sales manager with the Textile Dyeing & Printing Co., Fair Lawn, N. J., died Nov. 20.

David F. Greenawalt, president of Franklin Worsted Co., Philadelphia, 65, died on Nov. 10. He started the business in 1914.

George Simons, 66, head of the Simons Knitting Mills, Needham, Mass., died Nov. 13. He was born in England and came to this country in 1892.

Hartley L. Lord, 63, textile executive and newspaper owner, died at his home in Kennebunk, Me., Nov. 4. He was with the York Mfg. Co. from 1892 to 1920, was treasurer of Chicopee Mfg. Co. from 1902 to 1905; general manager of the Union Buffalo Mills, from 1905 to 1908; and agent of the Bates Mills in Lewiston from 1908 to 1914.

John Hudson Bennett, 65, vice-president of Wellington Sears Co., New York, died Nov. 22 after a long illness. He joined the company in 1901, became a partner in 1907 and vice-president in 1931. He was an accomplished musician and collector of international note of rare violins and other stringed instruments.

John B. Hardman, vice-president of the Harmony Grove Mills, and a director of the Commerce Mfg. Co., both of Commerce, Ga., died Nov. 18.

Frank C. Huyck, 64, chairman of the board of F. C. Huyck & Sons, Kenwood Mills, Rensselaer, N. Y. died Nov. 18. He was a son of the founder of the mill and had been with the company for 40 years, serving as president until six years ago when he became chairman of the board.

Jean Coudurier, 76, head of the Paris division of Coudurier, Fructus & Descher and vice-president of the American branch of that company, died Nov. 3 as a result of an automobile accident in France.

Harry Cohen, 58, president of Atlantic Dye Works, Paterson, N. J. died Nov. 21. He was born in Poland and came to the United States in 1903.

Henry J. Spillman, long identified with the silk industry of eastern Pennsylvania, died Nov. 12. He was associated with Duplan since 1899, operating a plant for that or-

ganization in Bethlehem and later establishing one in Hazleton.

Jesse P. Eddy, 65, treasurer and managing director of Tillinghast Stiles Co., Providence, R. I., died Nov. 5. Mr. Eddy was associated with the cotton

Jesse P. Eddy

yarn house for 47 years. He was a member of the A.C.M.A. and of the N.A.C.M. He was also active in civic affairs.

Thomas A. Carney, 64, who retired six years ago from the firm of Carney & Reige, Philadelphia, died Nov. 13 as a result of an automobile accident in Canada.

Leonard Croker, 61, for many years prominent as head of the converting department of Deering, Milliken & Co., New York, died at his home in Rutherford, N. J., Nov. 4.

John Joseph Ashe, 76, founder, president and general manager of the Ashe Hosiery Mill, Knoxville Tenn., died Nov. 19.

Frederick C. Zeisberg, 50, technical investigator for E. I. du Pont de Nemours & Co., Wilmington, Del. and head of the American Institute of Chemical Engineers, died Nov. 12.

Horace A. Fifield, general superintendent of Empire Cotton Mills, Welland, Ontario, died Nov. 19.

Alexander Beebe, 57, secretary-treasurer of Sterling Textile Co., Springfield, Mass., died last month. He was one of the founders of the concern in 1917.

Joseph Costine, former finishing department overseer of the old Hillsborough Woolen Mill, died recently in Hillsborough, N. H.

Joseph H. Dwyer, 63, retired official and part owner of the H. S. Hall Silk & Lace Co., Jersey City, N. J. and Port Jervis, N. Y., died suddenly Nov. 1 at Brattleboro (Vt.) Memorial Hospital.

Charles L. Osler, 58, for the last 7 months Pennsylvania sales representative of Riggs & Lombard, Inc., Lowell, Mass., died recently in Providence. Mr. Osler had been associated with the Hopkins Machine Co., Chepachet, R. I. until 1927 and later with Rodney Hunt Machine Co., Orange, Mass.

George B. Cocker, 68, president and general manager of Cocker Machine & Foundry Co., Gastonia, N. C., died Nov. 8, in a Richmond, Va. hospital after having become ill during a business trip to Washington. Born in Philadelphia, Mr. Cocker started to learn the textile machinery business at the age of 11, when he went to work for his father, the late John Cocker II. In 1910 Mr. Cocker moved to Gastonia, and for about four years was an independent machinery manufacturer and broker, operating at the old Gaston Iron Works. He founded the Cocker Machinery & Foundry Co. in 1914. Although he manufactured a wide variety of textile equipment, Mr. Cocker for many years specialized particularly in machinery for continuous warp dyeing and related processes. More recently he pioneered in the South in the development of rayon warp-sizing equipment.

James Milton Davis, 59, for a number of years superintendent of Enterprise Mfg. Co., Coleridge, N. C., and connected with the mill for more than 40 years, died Nov. 16.

Harry F. Marshall, 69, nationally known woolen machinery expert, for many years sales engineer of the James T. Hunter Machine Co., North Adams, Mass., died Nov. 16. He came to North Adams as office manager of the William White Co., manufacturers of dyers and woolen washers, and joined Hunter 40 years ago.

Harold Amory, 45, a partner in James Lawrence & Co., Boston, Mass., was fatally injured while horseback riding at the Norfolk Hunt Club, Dover, Mass., on Nov. 12.

C. L. Gilbert, 62, formerly associated with the Darlington (S. C.) Mfg. Co., southern representative of the Clinton (Iowa) Co., with headquarters at Spartanburg, S. C., died Nov. 13.

James Bradley Newton, for 20 years associated with Sipp-Eastwood Corp., died in Paterson, N. J., Nov. 6.

George H. Mintoff, 62, Old Orchard, Me., retired textile engineer, formerly with Saco-Lowell Shops, Biddeford, Me., died in Hopedale, Mass., Nov. 10. At one time he managed the Saio and Yarur cotton mills in Santiago, Chile.

William Graham, 83, widely known to the Canadian textile industry through his activities as a wool selling agent, died recently in Toronto.

See the Point

Fig. 1641
Pat. app. for

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Fig. 1645

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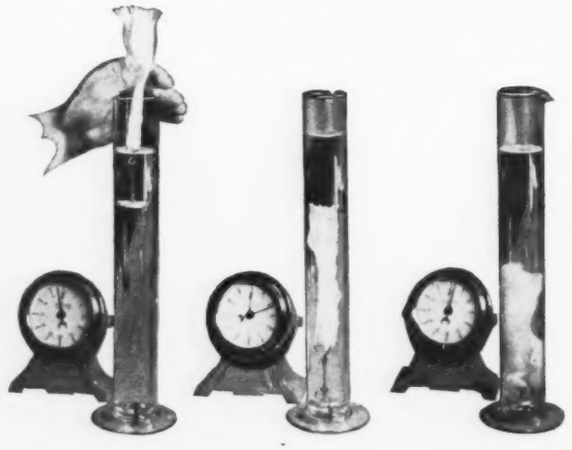

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We say that this superior surface-active agent wets out faster.

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MILL NEWS

Cotton Mill News

California Cotton Mills Uniontown, Ala., are renting a Guillet overhauling system, for use in overhauling their spinning machinery.

A. D. JULLIARD & CO., operating Aragon (Ga.) Mills, Inc., have taken over mill of Strain Mfg. Co., Rome, Ga., recently acquired at public auction, and initial operations have begun on cotton duck and kindred goods, giving employment to about 175 persons.

Athens (Ga.) **Mfg. Co.** has approved plans for one-story addition, 100 x 500 ft., and will proceed with superstructure. Cost over $100,000.

Eagle & Phenix Mills, Columbus Ga., reports net profit for year ended Aug. 31 of $33,959, against profit of $25,808 in preceding year.

Muscogee Mfg. Co., Columbus, Ga., has approved plans for expansion, including two large buildings to replace two old mill structures and installation of new equipment. Cost over $200,000, with machinery.

Bibb Mfg. Co., Porterdale, Ga., will construct a large addition to the Osprey Mill. The addition will have 100,000 sq. ft. of floor space, providing for installation of 250 new looms. The Bibb Mfg. Co. reports net profit for year ended Aug. 31, of $957,918, compared with $1,207,127 for preceding year.

Lockwood Co., Waterville, Me., has purchased a Guillet overhauling system, for use on their spinning and fly frames, from the Dixie Spindle & Flyer Co., Charlotte, N. C.

Hathaway Mfg. Co., New Bedford, Mass., reported gross operating gain of $137,346 for the fiscal year ended Oct. 1, but after $156,000 depreciation, there was net loss of $18,654. Damage by the hurricane of Sept. 21 was set at $125,000. The previous fiscal year resulted in net profit of $177,259.

Kilburn Mill, New Bedford, Mass., reports operating loss of $85,799 for year ended Oct. 1. Hurricane loss is set at $176,011, making total loss for year $261,810.

Soule Mill, New Bedford, Mass., suffered a loss in excess of $1,500,000 in the fire of Sept. 28. This is in accordance with our original advice which the printer garbled to appear in this column last month as $150,000.

Taber Mill, New Bedford, Mass., is expected to resume activities following RFC loans.

Berkshire Fine Spinning Associates, Inc., North Adams, Mass., reports loss of $517,108 for the year ended Sept. 30, 1938, compared with profit of $1,417,899 the preceding fiscal year.

Grenloch (N.J.) **Tapestry Mills,** are considering rebuilding of portion of three-story mill recently destroyed by fire. Loss close to $50,000, including equipment.

Nashua (N.H.) **Mfg. Co.** has installed one of the two largest Sanforizing machines in existence, delivering up to 72 in. finished width.

Alamance Yarn Co., Burlington, N. C., has plans for a unit at Chatham, Va.

Dora Mill, Cherryville, N. C., has remodeled its second unit and put it into operation and has restored damage by fire suffered Nov. 12.

Arlington Mill, unit of Textiles, Inc., Gastonia, N. C., is installing new machinery with which to devote a greater part of its output to the manufacture of coarse yarns.

Beacon Mfg. Co., Swannanoa, N. C., is completing one-story mill unit, and one-story extension to existing building.

Pelham (S.C.) **Mills**—Property of this company, consisting of two main three-story mill units and auxiliary structures, has been placed on the market. It occupies a tract of about 310 acres.

Hamilton (Ontario) **Cotton Co.** recently installed 28 new long-draft spinning frames from Whitin Machine Works and will convert 35 existing frames for long-draft spinning. The company will also modernize its carding department and may install long-drafting equipment for slubbing frames.

Wool Mill News

Farr-Alpaca Co., Holyoke, Mass., closed down its plant Nov. 21 for four weeks. The working force totaled only 400 at the time of the shutdown as compared with 4,000 employed during the most profitable periods. The company is endeavoring to arrange for a $2,500,000 R. F. C. loan so that manufacturing can be renewed. A series of stockholders' meetings has been held.

Amoskeag Mohair Spinning, Inc., has been formed and has bought Section A mill in central division of the Amoskeag buildings in Manchester, N. H. It will employ 125. J. E. Mooney is president; Sam Lightowler of Newton Center, Mass., is agent.

Saco-Lowell Shops

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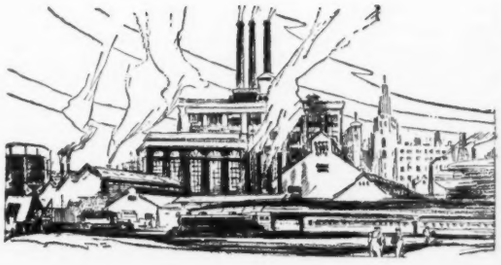

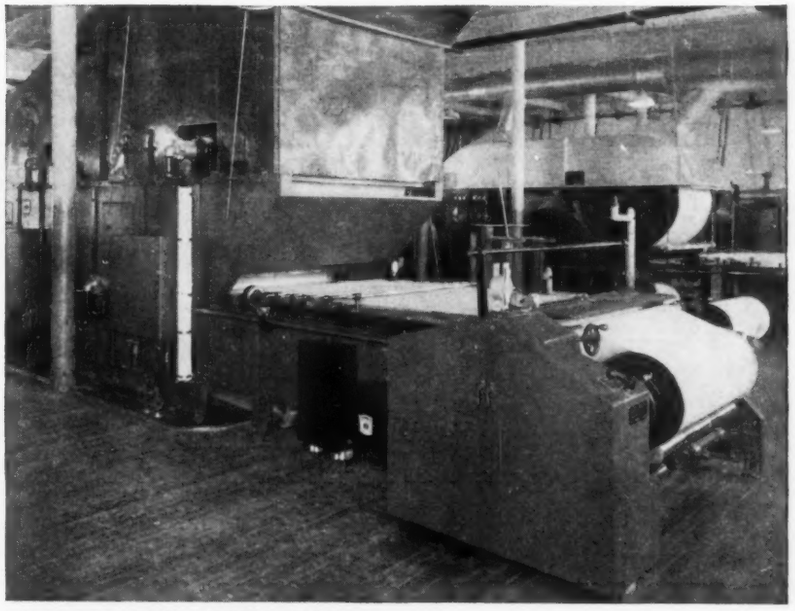

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That's particularly true of Saco-Lowell's preference for SKF Bearings on this High Speed Slasher. Their long familiarity with SKF performance on their vertical openers, pickers, spinning and twisting frames and other machines enabled them to *know* they were getting the right bearing in the right place.

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SILK, RAYON, FINE COTTON
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•

WILLIAM WHITMAN COMPANY, INC.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

MILL NEWS

Glen Woolen Mills, Ltd., Glen Williams, Ontario, has ceased operations, and the property has been offered for sale. The mills which were established in 1887, have three sets woolen cards, 1,464 mule and 181 twister spindles, and 20 broad looms.

WINDSOR MFG. CO., Philadelphia, Pa.—Officials of this company, headed by John Oughton, president, are said to have completed plans for a new mill in Georgia, and will remove certain equipment from local plant to new location at early date.

Auburn Mills, Peterboro, Ontario, owned by Dominion Woolens & Worsteds, Toronto, have closed, and the mill will be consolidated with the company's plant at Hespler, Ont., for the purpose of economy.

Rayon & Silk Mill News

Thread City Silk Co., Wilimantic, Conn., has set up six looms on silk neckwear, tailors' linings, etc. J. P. Summers is president and superintendent.

E. I. duPont deNemours & Co., Nylon Division, Rayon Department, Wilmington, Del., will begin work at once on new mill on 340-acre tract of land recently acquired near Seaford, Del.

Mount Airy (Md.) **Textile Mills, Inc.,** recently organized, has let contract to People's Lumber & Supply Co., Mount Airy, for one-story silk mill on local site. Cost about $40,000, with equipment.

AMOSKEAG FABRICS, INC., Manchester, N. H., recently organized with capital of $100,000, is completing installation of equipment in former Jefferson mill unit of Amoskeag Mfg. Co., and will soon begin production of spun rayon fabrics. Mill totals about 342,000 sq.ft. floor space. J. Briggs Fenton is president; and Arthur O. Roberts, treasurer; T. H. Hogan, superintendent. Selling agent for the product is Wellington Sears Co., New York.

American Viscose Corp., New York, N. Y., has superstructure under way on new units of mill at Nitro, W. Va., to double present plant capacity of 20,000,000 lbs. per annum. Completion is scheduled early next summer. Cost about $5,000,000, with machinery. Product is principally staple rayon.

Belding - Heminway Co., New York, report September quarter earnings as $80,147, compared with $81,977 for the third quarter of 1937.

Sidney Blumenthal & Co., New York, reports net loss of $235,857 for three months ended Oct. 1. For the corresponding 1937 quarter net profit of $65,619 was made.

Celanese Corp. of America, Inc., New York, N. Y., will begin erection of new mill on 1200-acre tract of land near Pearisburg, Va., early next spring. It will comprise several large units to cost about $10,000,000. Company reports net profit for third quarter of $1,325,098 comparing with $1,025,208 for corresponding quarter of 1937.

Eastern Yarn Mills, Inc., 205 West 19th. St., New York, N. Y., have leased large space in Bush Terminal Buildings, Brooklyn, N. Y., and will occupy for mill.

Burlington (N.C.) **Mills Co.** has work under way on improvements at former mill of Premier Silk Mills, Inc., recently acquired, and will install considerable new equipment.

Raleigh Mills Co., formerly the Caraleigh Cotton Mill, Raleigh, N. C., has begun the installation of new machinery, which will include 75 looms for the manufacture of heavy plushes of plain and jacquard designs, and later the mill will add its own dyeing and finishing equipment. No spinning will be done.

Galax (Va.) **Weaving Co.** has installed 20 new looms for rayon goods.

Knitting Mill News

Skyline Mfg. Co., Scottsboro, Ala., organized to operate a local hosiery mill on Federal homestead project, has let general contract to A. K. Adams Co., Atlanta, Ga., for one-story mill, 96 x 317 ft., at $95,000, exclusive of equipment. Alfred M. Marks, Pittsburgh, Pa., is architect. Dexdale Hosiery Mills, Lansdale, Pa., is interested in project.

Shannon Hosiery Mills, Inc., Columbus, Ga., recently chartered with capital of $1,000,000, will take bids for new mill on 6-acre tract of land on Warm Springs Rd. Cost estimated over $250,000, with equipment. J. E. Sirrine & Co., Greenville, S. C., are engineers. New company is headed by John Illges and D. A. Turner.

Fuller Hosiery Mill, Inc., Newnan, Ga., new concern, has put all of its equipment, consisting of 25 knitting machines, in operation. The new mill, with A. L. Fuller, president, is capitalized at $50,000.

Clay County Products Co., Green Cove Springs, Fla., re-

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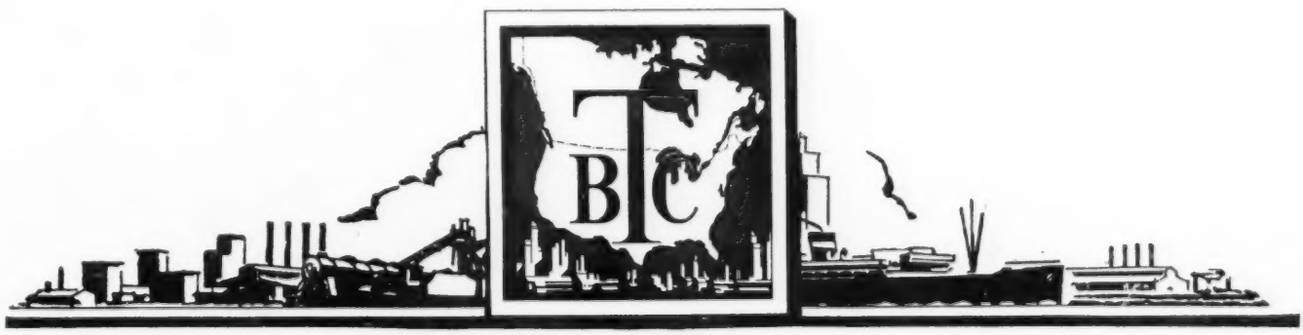

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Machines will pay for themselves in direct savings to you.

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Paramount Textile Machinery Company

Main Sales Office

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MILL NEWS

cently organized, is completing new mill for full-fashioned silk hosiery. Company is headed by R. L. Tilley.

J. J. Wilson, Milton, Fla., plans establishment of a full-fashioned hosiery mill.

Priester Mills, Inc., Paducah Ky., has been purchased by Morris Speizman, knitting machinery dealer of Charlotte, N. C.

J. C. Roulette & Sons, Inc., Hagerstown, Md., have been purchased by Arthur Albert, auctioneer, New York, from R.F.C., and the equipment is being offered for private sale at the plant. It includes 125 knitting machines, 250 sewing machines, etc.

PROPPER - McCALLUM HOSIERY CO., Inc., Northampton, Mass., will replace old type, short section machines in its two plants at Northampton and Florence, Mass., with new equipment including Reading machines and S. & S. single unit type. A new H-W conditioner for the silk has been installed. The replaced knitting machinery is being shipped to South America.

Belknap Mills Corp., hosiery manufacturer, has acquired additional quarters in a building across from its present location on Mill street, Laconia, N. H., to serve as finishing rooms, according to Joseph P. Morin, president.

Van Raalte Co., Inc., New York, N. Y., has acquired mill and business of Grewen's, Inc., Johnstown, N. Y., exclusive of real estate.

McCrary Hosiery Mills, Asheboro, N. C., is installing five, 45-gauge Reading full-fashioned hosiery machines, and two, 45-guage, S. & S. single unit machines.

Asheville (N.C.) **Hosiery Co.,** has let general contract to Robinson Bros., Inc., for one-story addition, to increase size of knitting department.

Penderlea Mfg. Co., Burgaw, N. C., organized to operate a hosiery mill at local Penderlea Farms, Federal homestead project, has let general contract to Erwin-West Construction Co., Inc., Statesville, N. C., for one-story mill, 96 x 117 ft. Alfred M. Marks, Pittsburgh, Pa., is architect. Dexdale Hosiery Mills, Lansdale, Pa., is interested.

A. W. Wheeler & Son., Inc., Brevard, N. C., full-fashioned hosiery mill operators, have work under way on remodeling the newly purchased Kirkpatrick Building. Eight knitting machines and auxiliary equipment will be installed.

Chipman, Inc, East Flat Rock, N. C., has completed new plant, and have installed 21, 42-gauge, machines; six are Readings, and 15, Kalio.

Marlee Full-Fashioned Hosiery Co.'s building, Gibsonville, N. C., has just been completed.

Graham (N.C.) **Full-Fashioned Hosiery Mill, Inc.,** has completed an expansion program at a cost of $35,000.

Davis Full-Fashioned Hosiery Mills, Inc., Greenville, N. C., capitalized at $200,000, has arranged with Greenville Industries, Inc., for erection of one-story mill on 14th St., near Reade St., to be occupied under long-term lease.

Jake Bowman has established a new hosiery mill at Hickory, N. C., which began operations Nov. 14.

J. W. Bingham & Son Co. has been formed at Hickory, N. C., and will start up this month with 108 machines. Mr. Bingham was an overseer in the Riverside & Dan River Cotton Mills for many years.

Piedmont Hosiery Mills, Highland, N. C., have improvements under way, which will practically double capacity of the mills.

Garrou Knitting Mills, Inc., Morganton, N. C., started work Nov. 3 on a second story to the front portion of its plant, providing space 75 x 60 ft.

Biltmore Hosiery Co., Naples, N. C., has completed an addition and will install six new machines soon.

Randleman (N.C.) **Full-Fashioned Hosiery Mills, Inc.,** will be established, it was announced Nov. 19. Plant is to cost $50,000 or more. The new industry is expected to be ready for operations around Feb. 1.

Yanceyville Hosiery Mill, Reidsville, N. C., recently completed its mill building, and early in December installed two full-fashioned machines. Others will arrive at the rate of two each month.

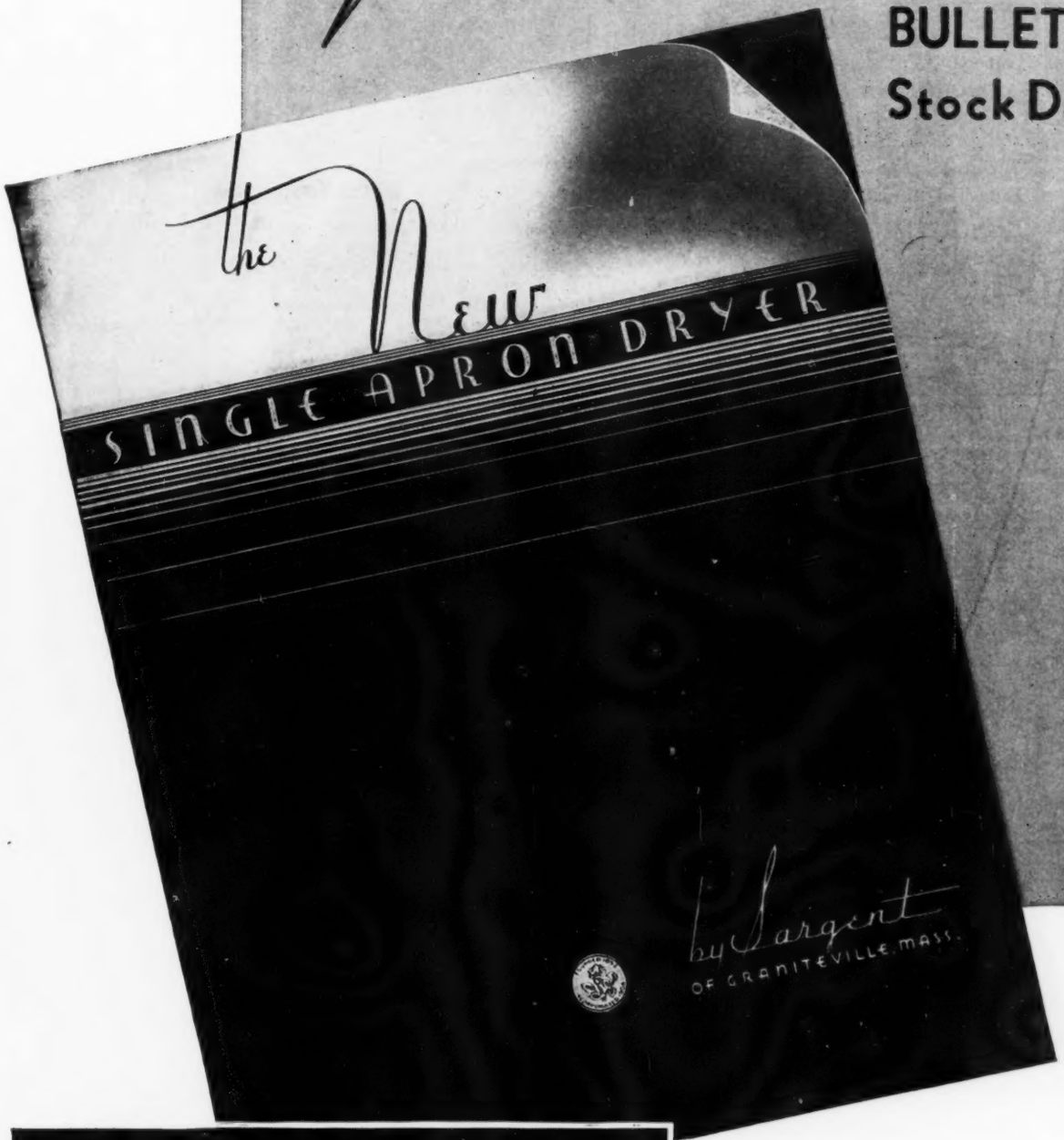
Sanderson Knitting Mill, Ephrata, Pa., is building an annex and will have 10 machines in operation soon.

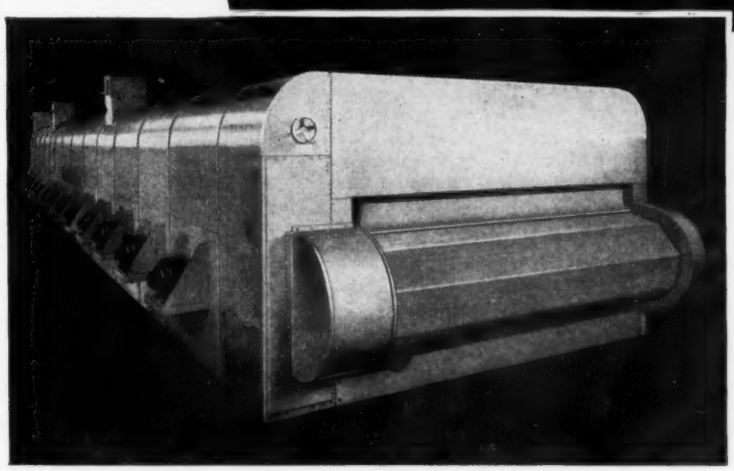
Hatboro, Pa. — Walter Hausel, superintendent at former mill of Oscar Nebel Co., and associates are arranging for early resumption of operations at plant, under new ownership.

Jersey Shore (Pa.) **Knitting Mills, Inc.,** are erecting one-story mill on Thomson St. Cost close to $50,0000, with equipment.

You Should Have This

BULLETIN on
Stock Dryers





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MILL NEWS

Thompson Hosiery Mills, Milroy, Pa., is installing eight 42-guage knitting machines to replace 39-guage.

Quakertown (Pa.) **Hosiery Mills** will install one 30-section footer and two 26-section leggers next month.

York United Hosiery, Inc., York, Pa., has been formed to operate the Sutro full-fashioned machinery at local plant.

Cumberland Mfg. Co., Crossville, Tenn., organized to operate a local hosiery mill at Cumberland Farms Federal homestead project, has awarded general contract to A. K. Adams Co., Atlanta, Ga., for one-story mill, 96 x 317 ft. Alfred M. Marks, Pittsburgh, Pa., is architect. Dexdale Hosiery Mills, Lansdale, Pa., is interested in project.

Franklin Fabrics, Inc., Elizabethton, Tenn., has started production of Tricot fabrics. The company has two Reiner machines and will install more.

Miller-Smith Hosiery Co., Etowah, Tenn., has purchased the old Delano Cotton Mill, near Etowah, and will operate a full-fashioned silk hosiery there. The firm is already operating over 100 Wildman single-head, single unit, 54-guage machines.

Niota (Tenn.) **Hosiery Mills** are increasing floor space and installing additional machinery to double capacity.

BLAND (Va.) SILK HOSIERY MILLS, INC., recently organized with capital of $200,000, has let general contract to Wythe Building Corp., Wytheville, Va., for one-story, full-fashioned hosiery mill to cost over $50,000 and to house 24 machines. Company is considering construction of a number of similar mills.

Chilhowie, Va.—Thomas J. Wallner, head of Virginia Maid Hosiery Mills, Inc., Pulaski, Va., has acquired site at Chilhowie, Smyth County, for new one-story full-fashioned hosiery mill. Cost reported over $200,000, with equipment.

Pannill Knitting Co., Martinsville, Va., is installing 40 Tompkins spring-needle machines and auxiliary equipment, recently purchased from the Sinnott Textile Corp., Rome, N. Y.

Red House Mfg. Co., Eleanor, W. Va., organized to operate a hosiery mill at local Red House Farms Federal homestead project, has awarded erection contract to George F. Hazelwood, Cumberland, Md., for one story mill 96 x 117 ft. Alfred M. Marks, Pittsburgh, Pa., is architect. Dexdale Hosiery Mills, Lansdale, Pa., is interested in project.

Allen-A Co. have sold all of the seamless hosiery equipment remaining in its Kenosha, Wis., plant, to Morris Speizman, Charlotte, N. C., machinery dealer. Included in the sale, were about 700 knitting machines.

Processing Plant News

Western Piece Dyers & Finishers, Inc., 517 South Jefferson St., Chicago, Ill., have acquired two-story plant at 3437-39 South LaSalle St., and will occupy for expansion.

DANVERS (Mass.) BLEACHERY has awarded a general contract to Leslie R. Porter Co., Boston, for a new one-story dye house, 50x85 ft., brick construction.

Textile Dyeing & Printing Co., Fairlawn, N. J., is planning early establishment of a new mill at another location to replace its Fairlawn plant.

Seyer Silk Dyeing & Finishing Co., Haledon, N. J., is installing modern equipment and improving plant set-up at cost of $25,000.

Triangle Print Works, Paterson, N. J., is being expanded by Joseph De Luccia and sales offices have been opened at 145 West 40th St., New York, Lew Bressler in charge.

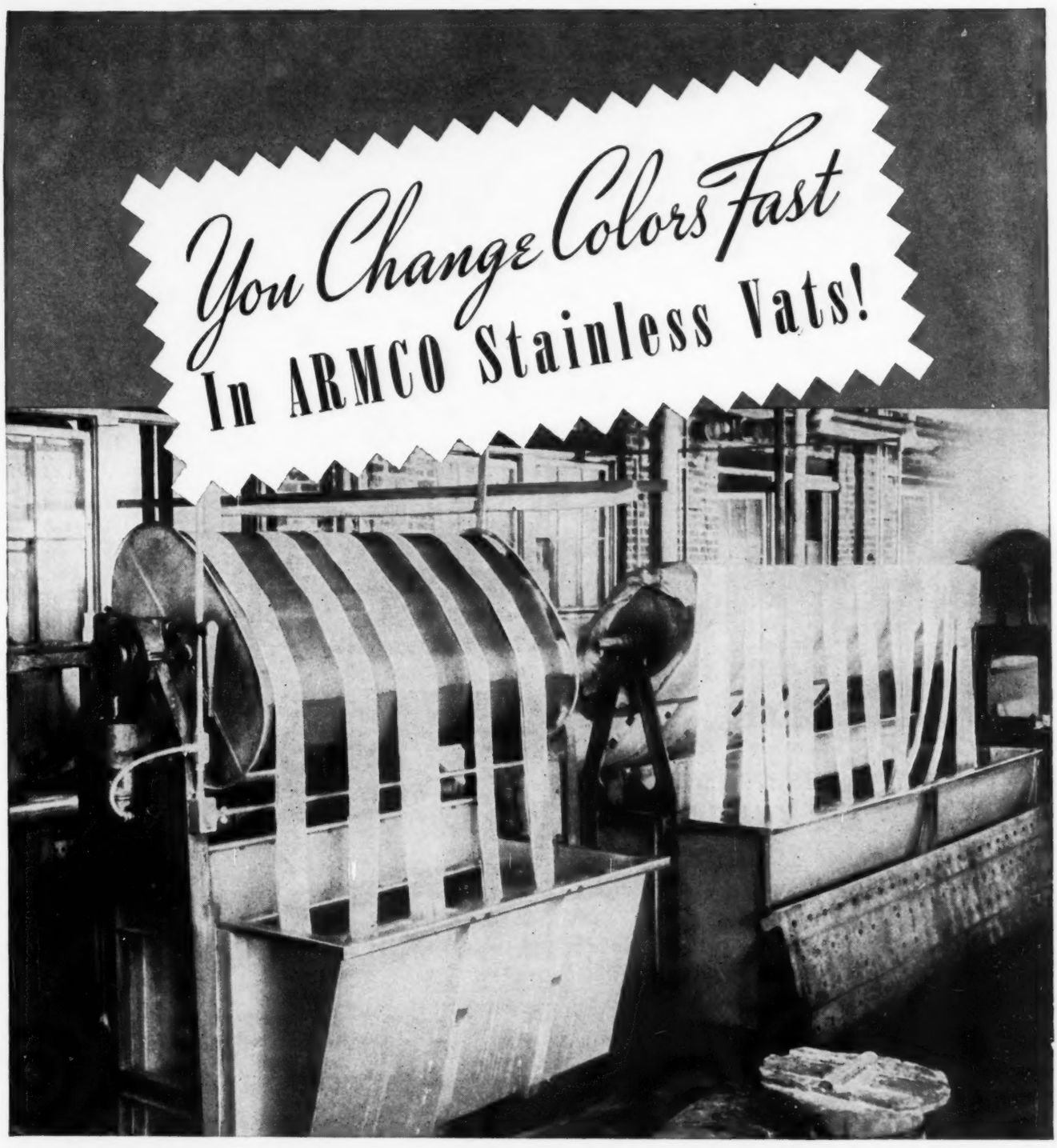
Emerson Finishing Co., Brooklyn, N. Y., is moving its plant to Cohoes, N. Y.

International Textile Printing Corp., 737 Broadway, New York, N. Y., has leased space in building at 304 East 23rd. St.

Carolina Process Co., Mount Holly, N. C., has been organized to take over and succeed Carolina Dyeing & Winding, Inc., with local mill, and will engage in commercial processing of all types of yarns. R. C. Anderson is president and treasurer; W. P. Rhodes, secretary; and R. L. Crump, mill superintendent.

Handcraft Textile Print Co., Westerly, R. I., has leased portion of former Aldrich plant at Moosup, Conn., and will move thither.

Custom Dye Works, Union, S. C., has been chartered to engage in dyeing and finishing hosiery. M. A. Bard is president. He states that S. F. Fiskin and E. A. Tarshis, two of the original incorporators have no longer any connection with the company.



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Boiling and bleaching of dye vats is out. The hard silvery-smooth surface of ARMCO Stainless will not admit the most penetrating dyes. It's simple to change colors—a quick wash-down of the dye vat and you're ready to go with another color. And ARMCO Stainless is highly resistant to corrosion. There is little or no chance of fabric discoloration from rust and your equipment lasts much longer.

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Textile World Yearbook and Catalog

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Monel Metal. International Nickel Co., Inc. 16-page revised technical bulletin describes engineering properties of "K" Monel metal; included are working instructions, data on heat treatment, corrosion resistance, mill products available, etc.

Knitting Machinery. Wildman Mfg. Co. Folder describes briefly several uses of company's bathing suit machines, and includes a sample of fabric knitted on this machine.

Heating Plant Maintenance. L. J. Wing Mfg. Co. Interesting chart listing many points which may require attention during heating season, with space left for checking those items found deficient.

Steel Products. Scully Steel Products Co. Stock list and reference book contains, in easy-to-find form, data on many of company's products.

Bearings and Bushings. Federal-Mogul Corp. Illustrated booklet shows steps in manufacturing company's products, together with numerous applications of these products.

Twisting Equipment. Atwood Machine Co. October issue of *Atwood Twists* contains photographs and descriptive material on company's new UniRail twister; pictorial section shows Atwood plant before, during, and after recent hurricane.

Greases. E. F. Houghton & Co. Leaflet describes company's products for lubrication of ball and roller bearings; includes lubrication chart showing company's recommendations for specific applications, based on r.p.m. and S.A.E. bore.

Silicates of Soda. Philadelphia Quartz Co. Vol. 18, No. 10 of *Silicate P's and Q's* contains discussion of various uses of company's products and recommendations for particular uses.

Kettles. Patterson Foundry & Machine Co. Illustrated folder describes company's electrically heated kettles for industrial use, and cites advantages of this type.

Chemical Pumps. Milton Roy. Bulletin No. 938 describes and illustrates improved models of company's chemical pumps and proportioners, designed for pumping any type of chemical in exactly the desired volume against pressures ranging from 0 to 15,000 lb.

Condensation Meter. American District Steam Co. 12-page bulletin No. 35-80A describes and pictures company's rotary condensation meter for accurate metering of steam; gives details of construction, operation, installation; includes diagrams and photographs.

Adjustable Sheaves. Allis-Chalmers Mfg. Co. Leaflet No. 2333 describes and illustrates 2-3-4 adjustable single-groove combination sheaves, manufactured by Texrope Division.

Shipping Boxes. Hinde & Dauch Paper Co. Illustrated booklet tells the story of company's corrugated shipping boxes.

Boiler Blowdown System. Elgin Softener Corp. Bulletin No. 510 discusses company's continuous blowdown system for steam boiler plants; includes useful charts and tables, and points out savings to be realized with heat exchangers.

Dyeing Handbook. E. F. Houghton & Co. Revised edition of "Handbook for Hosiery Dyers" gives information on various formulas, methods, etc.; includes conversion tables and other reference data.

Vacuum Cleaners. U. S. Hoffman Machinery Corp. 8-page booklet describes and pictures company's heavy-duty portable vacuum cleaners for industrial use.

Gear Reduction Equipment. Philadelphia Gear Works. Bulletin No. MR38 describes and pictures company's "MotoReducer", said to be applicable to all gear reduction problems; contains large data section on the dimensions of various types, sizes available, lubrication details, etc.

Lubrication. Standard Oil Co. November issue of *Esso*

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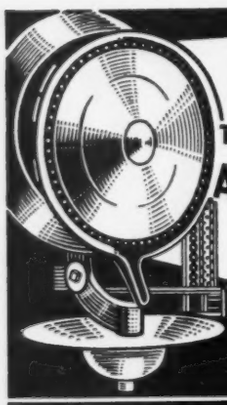

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(*Continued from page* 108)

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Oilways contains article describing the mop and rug producing mill of McCallum & Robinson, Inc.

Leather Packings. Alexander Bros. Pocket-size booklet describes and pictures various types of packings manufactured by the company; contains size and price data.

Wire Joints. Ideal Commutator Dresser Co. Illustrated mailing piece describes company's wire connectors and the many uses to which they are suited.

Magnifiers. Bausch & Lomb Optical Co. Illustrated 20-page booklet describes various types of magnifying glasses, including several having textile application; diameter, focus, and price data are included.

Lighting Fixtures. Miller Co. 12-page catalog section 1-C illustrates and describes company's reflectors for use with fluorescent lamps; included are charts showing light intensities at various spacings and mountings.

Steel Chain. Joseph T. Ryerson & Son, Inc. Leaflet describes heavy-duty chain made of nickel-molybdenum alloy; contains "safe working loads" table and specifications charts. Same company offers handy pocket-size book giving complete listings of steel products carried by Ryerson for immediate shipment.

Travelers. Victor Ring Traveler Co. October issue of *The Traveler* contains article on "Spinning Flax with Cotton or Rayon on the Cotton System."

Compressor. Worthington Pump & Machinery Corp. Bulletin H-620-B8A describes company's new balanced-angle type air compressor for industrial service. Same company offers leaflet W-423-B5, describing its vertical Triplex single-acting power pumps.

Chemicals. Columbia Alkali Corp. Cleverly indexed pocket-size booklet lists and describes company's products, types of put-up, and uses.

Pipe. American Rolling Mill Co. Bulletin No. 337 describes company's spiral-welded pipe, available in diameters from 6 to 36 in., and in lengths up to 50 ft.

Fire Hose Control System. Rockwood Sprinkler Co. Data Sheet D2-5 describes company's "dualguard" pneumatic remote control system for fire hose stations.

Payroll Control System. Stromberg Electric Co. 36-page textbook on the subject of solving payroll problems; included are chapters on the wage and hour law, how state laws affect employers, modern payroll procedure, etc.

Pillow Blocks. Stephens-Adamson Mfg. Co. Catalog No. 7538 describes and pictures company's new permanent-seal, self-aligning, ball-bearing pillow blocks; includes engineering data.

Laminated Plastic. Continental-Diamond Fibre Co. New "Dilecto" catalog illustrates and describes products made from this material—including sheets, rods, and tubes; machined, punched, and stamped parts; etc.

Welding Procedure. Lincoln Electric Co. Bulletin 401-A describes procedure for welding mild steel and all metals used extensively in industry, and for applying surface metal to meet wear-action in service.

Rayon. Rayon Division, E. I. du Pont de Nemours & Co., Inc., Booklet titled "What's What in Rayon" gives, in question and answer form, information about different kinds of rayon, their manufacture, and uses.

Alloy Price List. Haynes-Stellite Co. Folder gives price, size, weight, and limit information concerning alloy castings, hot rolled sheets and plates, and bar stocks manufactured by this company.

A GREAT NEW MARKET!

CROWN RAYON

IN CROWN TESTED QUALITY MERCHANDISE

demanded in men's wear

All the promotional power, the volume of sales that distinguishes Crown Tested Rayon fabrics in women's apparel, has entered the men's wear field. Manufacturers and converters are rallying to the Crown Tested mark, with new fabrics, new colors, new styles in men's clothing, sportswear, pajamas, lounge shirts, lounge robes, sweaters, ties, and many other smart wardrobe items . . . with boys' wear manufacturers following suit. A great new market for mills using Crown Rayon!

FORWARD WITH CROWN RAYON

CROWN VISCOSE RAYON	CROWN ACETATE RAYON	CROWN RAYON STAPLE

PLANTS

Marcus Hook, Pennsylvania · Roanoke, Virginia · Lewistown, Pennsylvania
Meadville, Pennsylvania · Parkersburg, West Virginia · Nitro, West Virginia
Front Royal, Virginia

SALES OFFICES

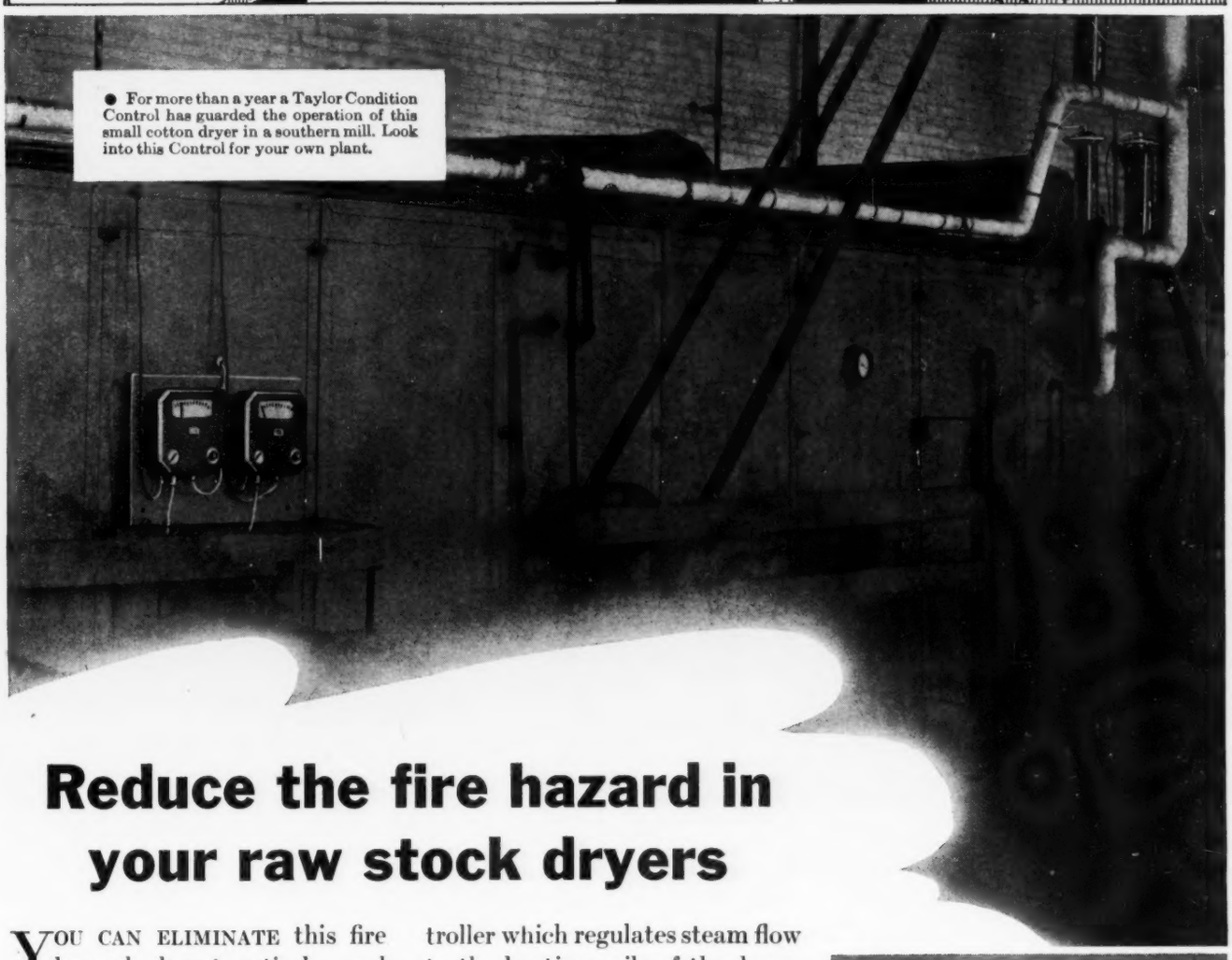
New York City · Providence, Rhode Island · Charlotte, North Carolina
Philadelphia, Pennsylvania

AMERICAN VISCOSE CORPORATION

World's Largest Producer of Rayon Yarn • 200 MADISON AVE., N. Y. CITY

Preferred by Nine Out of Ten Mills

"...AND THEN I TOLD THE BOSS"
ANOTHER FIRE TODAY! WE NEED UP-TO-DATE TEMPERATURE CONTROL ON THOSE DRYERS!
YES, WE'LL HAVE TO LOOK INTO IT SOMETIME.
— BUT THE NEXT WEEK WE HAD 25,000 LBS. OF COTTON ON FIRE... WAS THE BOSS BURNED UP BY THAT!
THEN HE ASKED ME WHAT MY IDEA WAS... THAT WAS A TIP TO GET A TAYLOR ENGINEER TO EXPLAIN HIS STOCK DRYER CONTROL.
4 WEEKS AGO THIS TAYLOR INSTRUMENT WAS PUT IN. WE HAVE'NT HAD A FIRE SINCE. WHY DON'T YOU LOOK INTO IT TOO?


● For more than a year a Taylor Condition Control has guarded the operation of this small cotton dryer in a southern mill. Look into this Control for your own plant.

Reduce the fire hazard in your raw stock dryers

YOU CAN ELIMINATE this fire hazard almost entirely, and also automatically keep uniformly correct drying temperature with the Taylor Condition Control. In many cases this system enables mills to run cotton right through the process without holding for necessary moisture content because the proper drying condition has been maintained.

This Condition Control is one more example of a Taylor System engineered to meet existing needs in textile mills. Its key instrument is the Fulscope Indicating Controller which regulates steam flow to the heating coils of the dryer. The complete system guards against too dry an atmosphere at the dry end of the drying machine and operates a steam spray which practically gets rid of fire hazards.

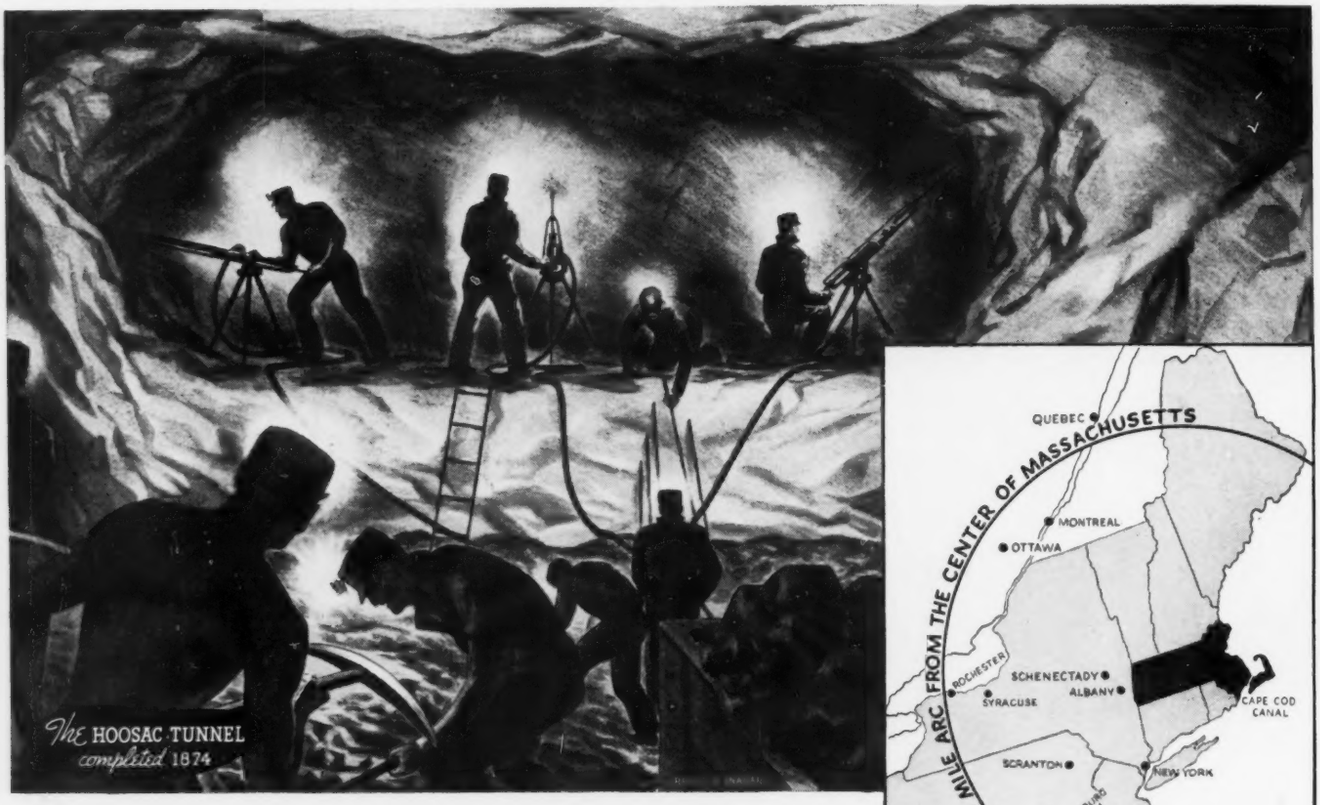
Let a Taylor Representative see how this Control can be applied to your mill. Ask him also about the widely used Taylor Slasher Control and Systems designed especially for different finishing operations. Every one of these installations pays for itself quickly in processing economies and more uniform cloth. Taylor Instrument Companies, Rochester, N. Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

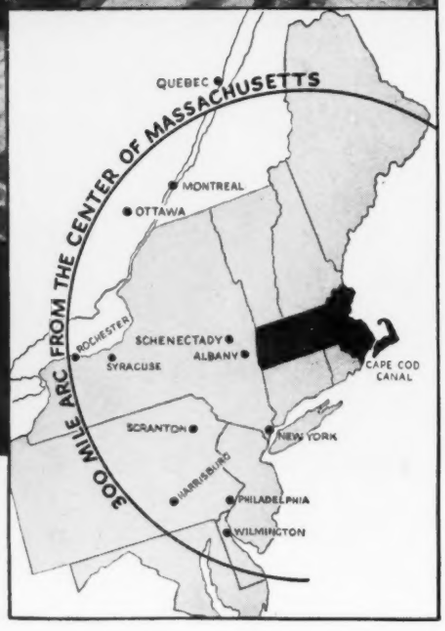
Taylor

Indicating Recording • Controlling

TEMPERATURE, PRESSURE, FLOW *and* LEVEL INSTRUMENTS

to speed delivery of its products, Massachusetts pushed a railroad through a mountain, cut a canal across a cape, constructed highways, landing fields . . .





MASSACHUSETTS'

superb transportation systems

PROVIDE OVERNIGHT DELIVERY TO MAJOR MARKETS

Faster to market, farther to market . . . for nearly a century Massachusetts has been speeding up the transportation of goods — cutting the miles and the hours between Massachusetts' manufacturers and their markets, first by rail and water and now by highway and air.

An overnight train haul of 300 miles is here regarded as standard practice. With this radius, sweep a great circle from the center of Massachusetts. Within its arc lie all the important markets of New England and the densely populated areas in and about New York and Philadelphia. Encompassed, besides New England, are all of New Jersey, most of New York State, half of Pennsylvania, part of Maryland and much of Delaware. Included are Montreal and Ottawa, with Quebec only slightly beyond the three hundred mile rim. Within this circumference are thickly dotted dozens of important market cities such as Albany, Schenectady, Rochester, Syracuse, Scranton, Harrisburg and Wilmington. Goods may load at Worcester until 2:20 P. M. for delivery the next morning in Baltimore, 402 miles away. Within the states enclosed or cut by the three hundred mile circle of overnight delivery live 29.5% of all the people in the United States. Here are 42.8% of all industrial workers, 43.2% of all wages, and nearly 43% of all industrial establishments.

Proximity to market is but one of the many basic advantages industry enjoys in Massachusetts, famed for its skilled, conscientious labor, its stable banking structure, it's favorable climate and cultural facilities. The tax rate for manufacturing corporations is lower in Massachusetts than in any other industrial state. Massachusetts welcomes new industry and helps it to succeed. Write today for "Industrial Advantages of Massachusetts".

THE MASSACHUSETTS DEVELOPMENT AND INDUSTRIAL COMMISSION · STATE HOUSE, BOSTON, MASSACHUSETTS

IT'S PROFITABLE TO PRODUCE IN MASSACHUSETTS

. . . with this precision hosiery boarding CONTROL

Proper feel and finish of hosiery depends on having the drying rate both correct and uniform. Uniformity of drying demands uniformity of temperature – precise, reliable temperature control.

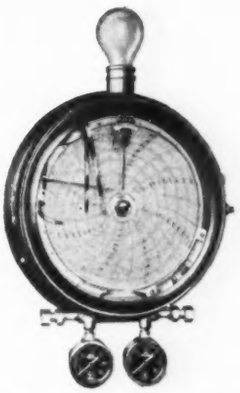
Foxboro Temperature Recorder-Controllers are ideal for automatic control of boarding operations. The exact temperature for each number or weight of hosiery is easily maintained, without guesswork or inaccuracy. Hairline duplication of proved schedules can be made from existing chart records . . . and you always have a permanent, unquestionable check on conditions for each batch.

Production is accelerated, for operators need attend to only the actual boarding operations. "Seconds" are reduced; the finished product is more uniform.

All this means money saved in cutting down waste...in attaining more efficient production. It's just *one* of the many developments and improvements Foxboro has engineered in the textile field. For complete information write

THE FOXBORO COMPANY
84 Neponset Avenue
Foxboro, Mass., U.S.A.

Atlanta Office: 101 Marietta Street Building
Branch Offices in 25 Principal Cities



Be sure to investigate the important benefits from Foxboro Automatic Dye Machine Control. Write for Bulletin 712.

FOXBORO
REG. U. S. PAT. OFF.

TEMPERATURE RECORDER-CONTROLLERS

LUNKENHEIMER
Fig. 1720
STEEL GLOBE VALVE
600 lb. SP–750° F.
A distinctive design with nickel alloy bonnet-thread-bushing, highly resistive to wear, and stainless steel stem, seat and disc.
Made in screwed or bolted bonnet; full-way or throttling; screwed or flanged.
1 inch
Fig. 1720
ESTABLISHED 1862
THE LUNKENHEIMER CO.
"QUALITY"
CINCINNATI, OHIO, U. S. A.
NEW YORK CHICAGO
BOSTON PHILADELPHIA
EXPORT DEPT. 318-322 HUDSON ST., NEW YORK
If you have no copy of List Price Schedule R1 giving new list prices of Lunkenheimer Products, ask your local Lunkenheimer distributor or write The Lunkenheimer Co., Cincinnati, Ohio.

We believe we've solved the cost problem for you!

Now you can make those Cooling or Humidifying improvements at a cost within your means . . .

WHEN WE SAY we believe we've solved the cooling and humidifying cost problem for you—we mean it. If your mill has been "running a fever"—if, as a result, you have been suffering from costly production shutdowns and quality troubles—we are confident we can bring you definite relief *at a cost within your means.*

From experience we know that mills differ in their requirements—and in their ability to invest in cooling and humidifying equipment. So we frankly faced this situation—and developed four plans to meet a variety of needs—and to fit a variety of pocketbooks.

Check these plans to the right. We believe that you will find a plan there to meet your own individual requirements—whether you can afford only an extremely low cost "package" unit for circulating controlled amounts of outdoor air or, at the other extreme, a complete "engineered" evaporative cooling and humidifying system.

No matter what you may decide on, you will get the benefit of Sturtevant's close cooperation and many years of experience as a pioneer in textile mill cooling and humidification. The same experience which has so satisfactorily and economically solved cooling and humidifying problems for a large number of mills including Dupont Rayon Co., American Enka Co., E. M. Holt Plaid Mills, Carter Fabrics Co., Carl Stohn Inc., Hudson Silk Hosiery Mills, Scranton Lace Co., Burlington Mills, Ramseur Hosiery Mills, and many others.

It will cost you nothing to discuss your problem with one of our experienced representatives. His advice will be based on first-hand contact with a great variety of mill cooling and humidifying problems and you will find him anxious to be of real help to you. Your request for further information or cooperation will bring a prompt response.

COOLING & AIR CONDITIONING DIV.
B. F. STURTEVANT COMPANY
HYDE PARK, BOSTON, MASS.
Atlanta Camden Chicago Greensboro
Los Angeles New York

Sturtevant
REG. U. S. PAT. OFF.
Puts Air to Work

PLAN 1.

Vap-Air Units—**An extremely low cost standardized unit for room cooling in conjunction with an existing humidifying system, supplying automatically controlled outside air. Easily installed by mill mechanics, it maintains even relative humidity at all times, prevents over-humidification, insures uniform distribution of air. All under automatic control.**

PLAN 2.

Vap-Air Blender Units Plus Your Head System—**A carefully engineered low cost system which provides a *guaranteed* summer temperature reduction. Installation under supervision of Sturtevant experts includes revision of present humidifying system so as to provide desired degree of temperature reduction most efficiently. All under automatic control.**

PLAN 3.

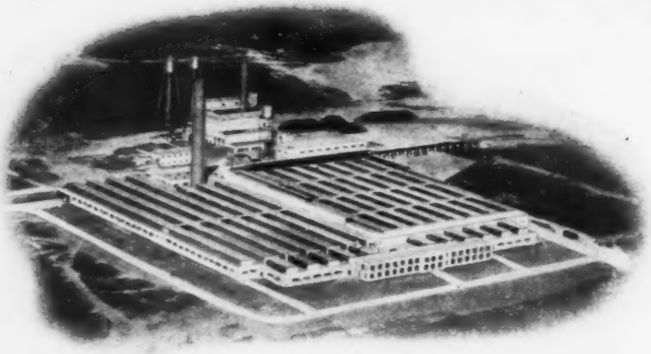
Sturtevant Textile Evaporative Cooler and Humidifier System—**A "tailor-made" system, completely installed, of either several unit systems, or one large system. Provides lowest possible temperature obtainable without use of refrigeration. All under automatic control.**

PLAN 4.

Sturtevant Textile Evaporative Cooler and Humidifier System Combined with Supplementary Head Systems—**Essentially the same as Plan 3 but adapted for rooms requiring relative humidity above 65%. All under automatic control.**

Cooling & Humidification to Fit Your Pocketbook

New Rayon Plant u of ACE

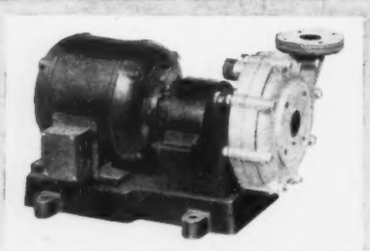


Industrial Rayon Corporation's new $11,500,000 plant at Painesville, Ohio, housing the world's largest hard rubber installation.

12¼ miles of Ace Hard Rubber Pipe – 1½ to 8 inches – with 17,974 standard and special Ace Hard Rubber Fittings have been furnished to INDUSTRIAL RAYON CORPORATION'S new Painesville plant for distribution and return lines feeding the machines produced by RAYON MACHINERY CORPORATION for which 8070 Ace Hard Rubber Reel Trays were molded.

Ace Hard Rubber Pipe and Equipment was chosen to keep processing solutions free of any form of contamination. Our Engineers and the Engineers of Industrial Rayon Corporation and Rayon Machinery Corporation worked in close cooperation over a period of two years in the design and production of the Ace Hard Rubber Equipment installed on this job.

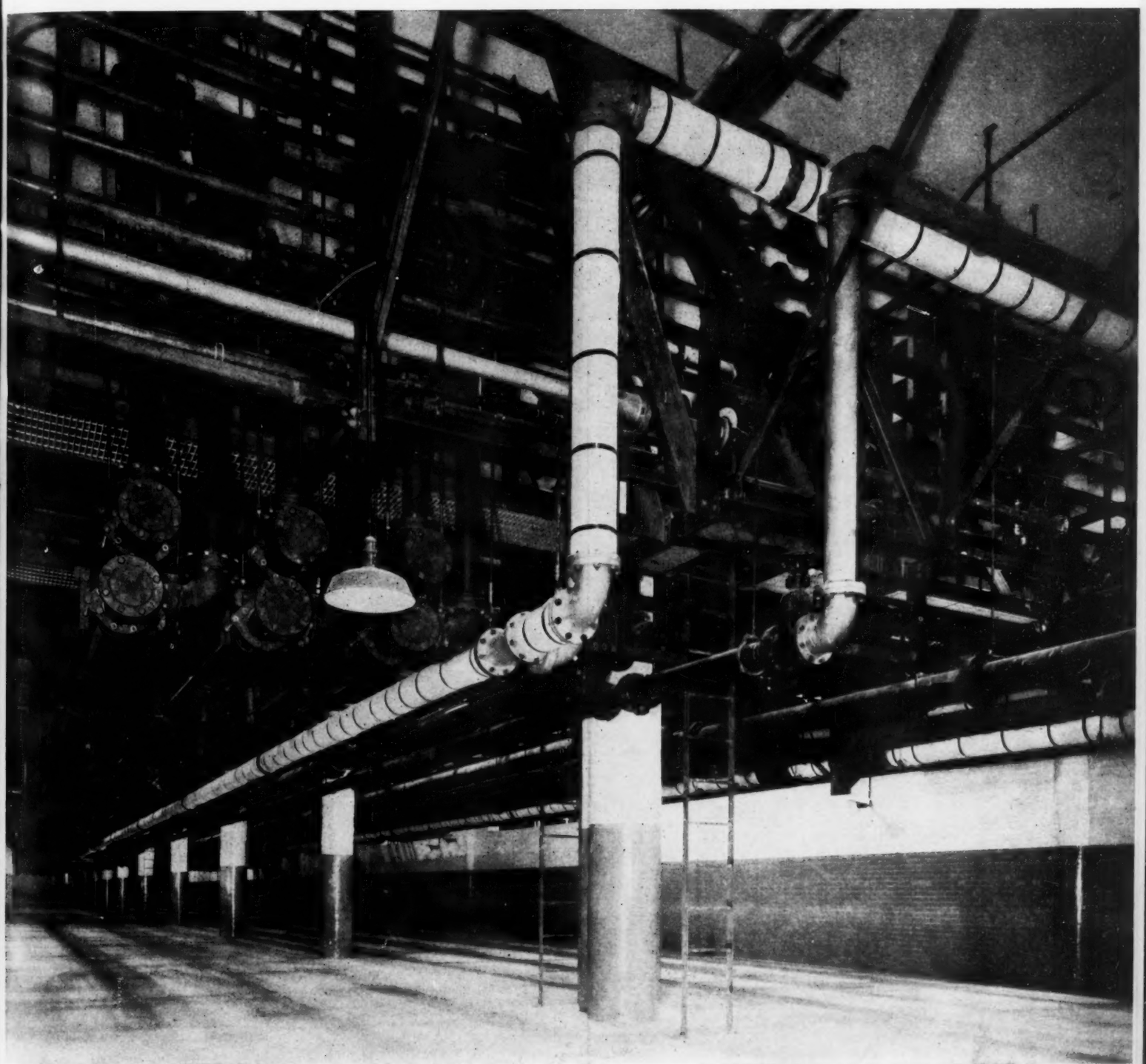
Remember . . . Ace Rubber Equipment prevents contamination and corrosion. Write for catalogue and information to American Hard Rubber Company, 11 Mercer Street, New York, N. Y. . . . Akron, Ohio . . . 111 W. Washington Street, Chicago, Illinois.



28 Ace hard rubber centrifugal pumps, and,

1040 Ace rubber lined Hills McCanna Co. Saunders diaphragm valves installed with the hard rubber pipe lines.

t uses 290 tons
E HARD RUBBER



(Left) 8070 Ace hard rubber reel trays—each weighing 35 lbs. net are used with the many thousands of reels of the type shown in this photograph. This tray is said to be one of the largest single pieces ever molded—it is 104 inches long by 8½ inches wide by 8½ inches deep and is an intricate piece of molding.

(Above) 12¼ miles of Ace hard rubber pipe convey processing solutions without contamination. Specially gasketed joints were designed to suit the unusual conditions of operation.

AMERICAN HARD RUBBER COMPANY

11 MERCER STREET, NEW YORK • AKRON, OHIO • CHICAGO, ILL.

Again this year
Hundreds of mill men in every section of the country — in every branch of the industry — express their appreciation of this year's edition of the "looking-up" place of the Textile Industry.
Every day more mill men are discovering that this handy reference volume saves their time because it contains invaluable product, service and mill-operating data.
That's why we suggest to all mill men, when seeking information: — "Look it up" first in the
Textile World
Yearbook and Catalog

SUPRANOL
DYESTUFFS

Create season-to-season good will for bathing suits through the use of Supranol Dyestuffs—the acid dyestuffs, fast to sun and salt water.

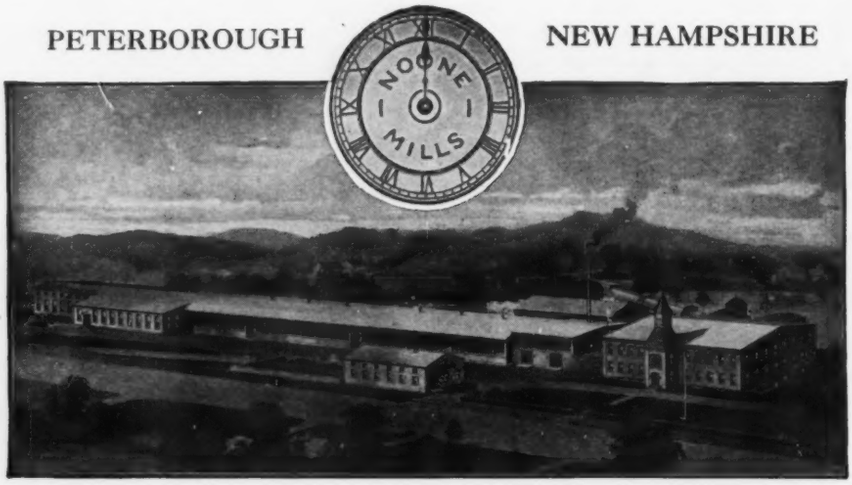
GENERAL DYESTUFF CORPORATION

GDC 435 HUDSON STREET, NEW YORK, N. Y.

The Joseph Noone's Sons Company

A. Erland Goyette, Proprietor

PETERBOROUGH NEW HAMPSHIRE



Established 1831

Noone's Standard Roller Cloths

Insist on Noone's Standard Roller Cloths for your Spinning Rolls. Noone's have been Standard since 1831.

Results and costs are what count most.

Use Noone's Roller Cloth and be assured of a Strong Round uniform yarn, the best obtainable. Eventual cost, less than any other covering.

Good spinning can always be obtained when Noone's Roller Cloth is used, as it is the properly built Cloth,—has the correct cushion and consistency, and uniform gauge.

Noone's is best by test.

Many materials have been used for Spinning Roll Covering in years past, but have eventually been discarded in favor of the dependable Woolen Roller Cloth and Leather.

Do not be misled, put your faith in the good Old American Products: Noone's Roller Cloth and leather. If in doubt, allow us to demonstrate the superiority of our Roller Cloth and a leather cot.

Use Noone's Roller Cloths, Noone's Slasher Cloths, Noone's Clearer Cloths.

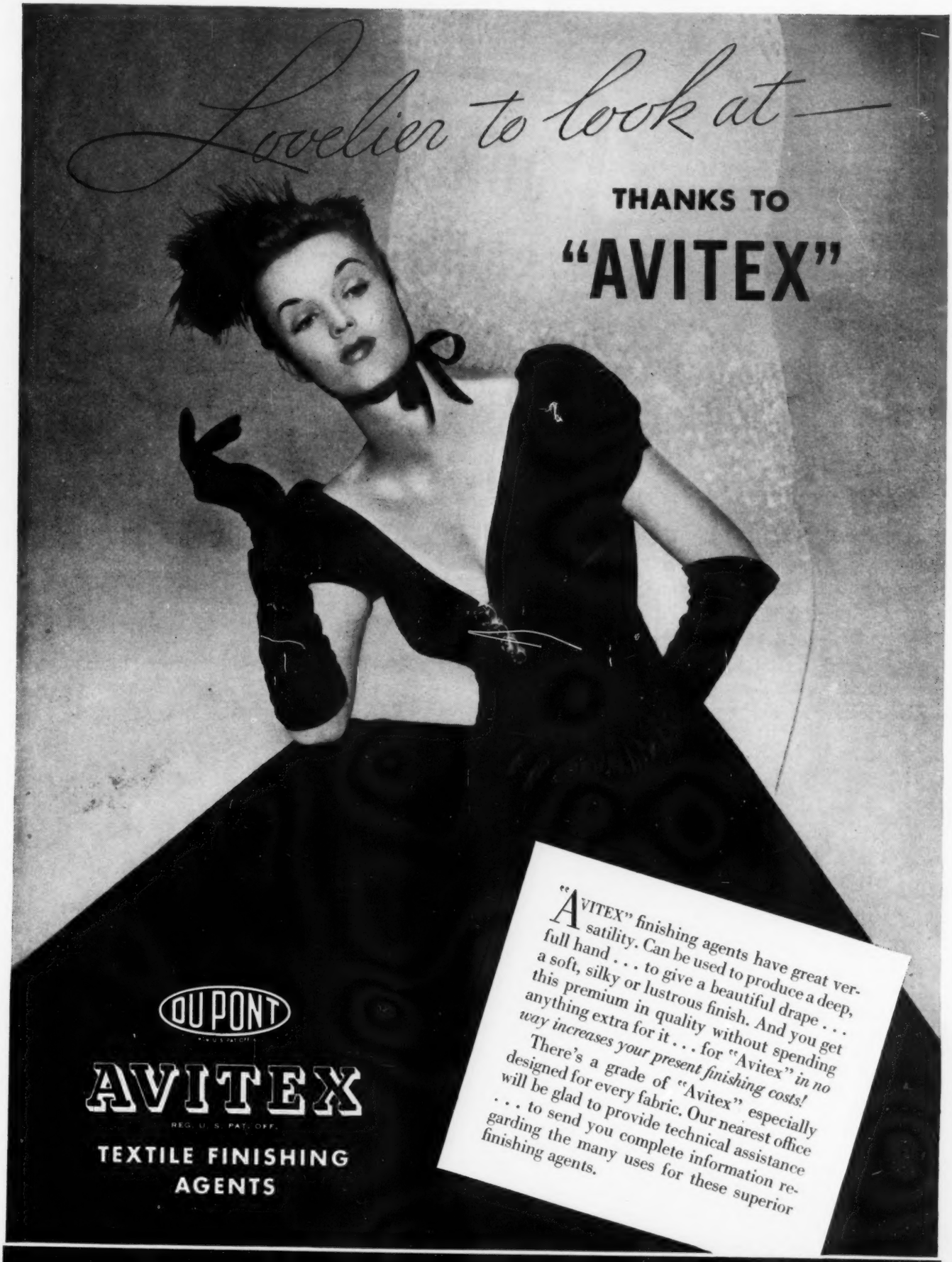
Noone's are the Pioneers in Mechanical Cloth Manufacturing in America.

WILLIAM R. NOONE & COMPANY

Selling Agents

ARNOLD T. MALONE, Manager

105 Washington Street Boston, Mass.


Lovelier to look at—
THANKS TO
"AVITEX"
DU PONT
AVITEX
REG. U. S. PAT. OFF.
TEXTILE FINISHING AGENTS
"AVITEX" finishing agents have great versatility. Can be used to produce a deep, full hand . . . to give a beautiful drape . . . a soft, silky or lustrous finish. And you get this premium in quality without spending anything extra for it . . . for "Avitex" *in no way increases your present finishing costs!*
There's a grade of "Avitex" especially designed for every fabric. Our nearest office will be glad to provide technical assistance . . . to send you complete information regarding the many uses for these superior finishing agents.
E. I. DU PONT DE NEMOURS & CO., INC., FINE CHEMICALS DIVISION, WILMINGTON, DEL.
SALES OFFICES:
Boston, Mass., Charlotte, N. C., Chicago, Ill., New York, N. Y., Philadelphia, Pa., Providence, R. I., and San Francisco, Calif.
Represented in Canada by Canadian Industries Limited, Box 1260, Montreal, Quebec, and 372 Bay Street, Toronto, Ontario.

OUR BUSINESS IS SAVING YOU MONEY

In the making of Wyandotte Textile Sodas and Alkalies, there is one thing we always keep in mind — we are not doing our job unless we are helping you to do your job both *better* and *cheaper*.

Whatever the operations in your mill, whatever fabrics you produce, you'll find that the high quality of Wyandotte Textile Sodas and Alkalies makes quality work more economical.

May we send a Wyandotte Service Representative to call and talk over your cleaning, scouring and fulling problems?

THE J·B·FORD COMPANY
WYANDOTTE MICHIGAN
DISTRICT OFFICES IN 26 CITIES

Stop LUBRICANT LEAKAGE WITH

You run no risk of product spoilage from leaking lubricant when your machines are equipped with Chicago Rawhide "Perfect" Oil Seals.

These seals hold oil or grease in the bearings, prevent leakage and eliminate danger of foreign substances such as moisture and dust from entering the bearing housing. Thus you not only avoid spoilage of cloth in process but you add materially to the life of your machines and reduce both lubricant costs and maintenance expense.

Ask Chicago Rawhide engineers for their recommendations in applying oil seals to your equipment.

PERFECT Oil Retainer PATENTED

CHICAGO RAWHIDE MANUFACTURING CO.
1284 ELSTON AVENUE • CHICAGO, ILLINOIS
59 Years Manufacturing Quality Mechanical Leather Goods Exclusively
PHILADELPHIA • CLEVELAND • NEW YORK • DETROIT • BOSTON • PITTSBURGH • CINCINNATI

Available in hp ratings from 3 to 15 hp

"They're Cleaning Fine!"

We hear from users that the G-E screenless open spinning-frame motors are "cleaning fine." This is evidence that these motors are operating successfully in lint-laden atmospheres, and consequently with less worry to mill operators over shutdowns or loss of efficiency because of the lint-clogging of motors. On these motors, specially shaped fans at both ends of the rotor exert a powerful force to expel any lint that may enter. Air passages are smooth—no baffles to interfere. Every practical step has been taken to assure long, effective motor operation. To get further information on these motors, inquire of the General Electric office nearest you, or write General Electric, Schenectady, N. Y.

New Mercury Switch Assures Full Bobbins

Because this switch stops the motion of the spinning frame at the correct time for doffing full bobbins, and because the normal coast of the frame to the rest position allows the switch lever to return itself to the reset position, this new switch saves doffing time and assures uniformly full bobbins.

It is especially suitable for the stop motions in spinning. It is operated by a latch on the ring rail, and when the rail reaches full-bobbin position, the latch raises the lever of the switch, shutting down the spinning frame. Only slight pressure is necessary for positive making or breaking of the electrical contact.

Durability—All parts of the mercury limit switch are enclosed, avoiding fire hazard from sparking. Some idea of the trouble-free quality of this switch can be had from the fact that on test a mercury switch worked 100,000,000 times.

General Electric, Dept. 6A-201
Schenectady, N. Y.

Please send me Publication GEA-1557B.

Name.....

Company.....

Street.....

City and State..... 011-445

General Electric, Dept. 6A-201
Schenectady, N. Y.

Please have a representative call to discuss this switch with us.

Name.....

Company.....

Street.....

City and State..... 011-445

GENERAL ELECTRIC

Ready for YOU
There are many reasons why any manufacturer who is moving, expanding or decentralizing should consider the State of Maine. There is no State income tax. No sales tax. No machinery tax. No corporation tax. And, in addition, there are a few vacant plants like the one shown here that can be leased or purchased at a reasonable figure.
This plant is in south-central Maine — 50 miles from Portland, with its harbor facilities. 160 miles from Boston. Overnight to New York by rail. Trucking service to principal markets.
This is one of the few vacant plants of varying size located in the midst of friendly labor and economical power. Also there are many available business sites. State the requirements of your business. Find out specifically what Maine has to offer you. Address the Maine Development Commission, Room 210, State House, Augusta, Maine.
MAINE INDUSTRY
MAINE
Development Commission

machine and hand knitting

YARNS

[french and bradford spun]

for

BATHING SUITS - HOSIERY
OUTERWEAR - UNDERWEAR

Colors available in Hand Knitting Yarns include White in Oil, Heathers and Oxfords. Also Scotch Tweed colors in a wide range of combinations.

American Woolen

COMPANY, INCORPORATED

*THE GREATEST NAME IN WOOLENS

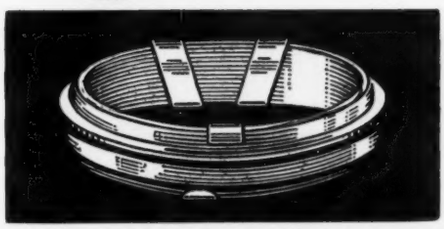
*REG. U.S. PAT. OFF.

225 FOURTH AVENUE • NEW YORK CITY

There's only one way I know to get smooth uniform silk and rayon yarns...

U. S. TRAVELERS

say experienced Textile operators . .

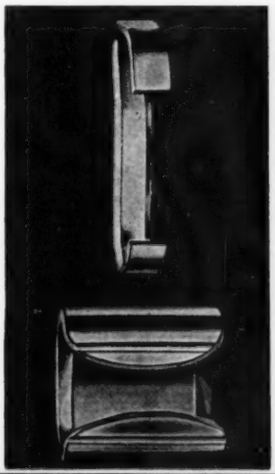


Above—Bowen *Patented* Vertical Offset Traveler—After exhaustive tests under actual running conditions, the Bowen Patented Vertical Offset Traveler has proved its worth in the twisting of cords and plys. Based on the true mechanical principle of taking a diagonal position with relation to the ring, presenting a bearing surface over the full width of the Traveler. This design prevents gripping or binding—gives an even tension—an evener rounded product—longer life to the traveler. Send for samples and prices.

"Can a textile man make money?" was asked editorially in this paper a short time ago . . . and the answer was (in a nutshell), "He can—if he *will!*" And two ways to make money, it was pointed out, were (1) modernize his equipment and (2) improve his methods and products (quality). This page tells how . . . in the field of yarn production. Enough said!

Right—High—Ne-Bow—*Patented* Vertical Ring Traveler—Developed to meet the particular needs of the silk and rayon trade in the process of throwing, due to the recent adoption of the vertical ring, particularly of the lubricating type.

By eliminating the pivoting action of the traveler, the traveler is at all times kept in close contact with the groove or device for lubricating the ring and assists in drawing therefrom the lubricant, distributing the same evenly over the entire inner surface of the ring; promoting a longer life to the traveler and a more even twist.



Right—Bowen—*Patented* Bevel Edge—The Bowen Patented Bevel Edge feature of U. S. Ring Travelers produces ideally smooth, even yarn. There are no angular edges to flatten the end. There are no split ends in throwing rayon and silks—no fly waste in the spinning and twisting of cotton, wool, worsted, asbestos, kindred fibres. Made and stocked in all sizes and weights, for all kinds and counts of yarns.

Sold under the trade names

Bowen Round Point Travelers
Bowen Square Point Travelers
Bowen Improved Vertical Bronze
Bowen Patented Bevel Edge
Bowen Patented Ne-Bow Vertical
Bowen Patented Vertical Offset
Bowen Flat Oval and Round Wire Travelers

U. S. RING TRAVELER CO.

PROVIDENCE RHODE ISLAND

Amos M. Bowen, Pres. and Treas.
SALES REPRESENTATIVES:

NEW ENGLAND	SOUTHERN	MID-ATLANTIC
Carl W. Smith	Wm. P. Vaughan	M. Lee Bolton
Herbert J. Smith	Oliver B. Land	
	Torrence L. Maynard	

A Traveler for Every Fibre

COTTON
RAYON

YARNS

WORSTED
MOHAIR

AVONDALE MILLS
of Alabama

COWIKEE MILLS
Alabama

FITCHBURG YARN CO.
Fitchburg, Mass.

WATATIC SPINNING MILLS
Fitchburg, Mass.

LIMERICK YARN MILLS
Limerick, Maine

SELLING AGENTS

WATERMAN, CURRIER & COMPANY, INC.

BOSTON
CHICAGO
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WEIMAR BROTHERS

U. S. BINDING

TRADE MARK

•

Manufacturers of

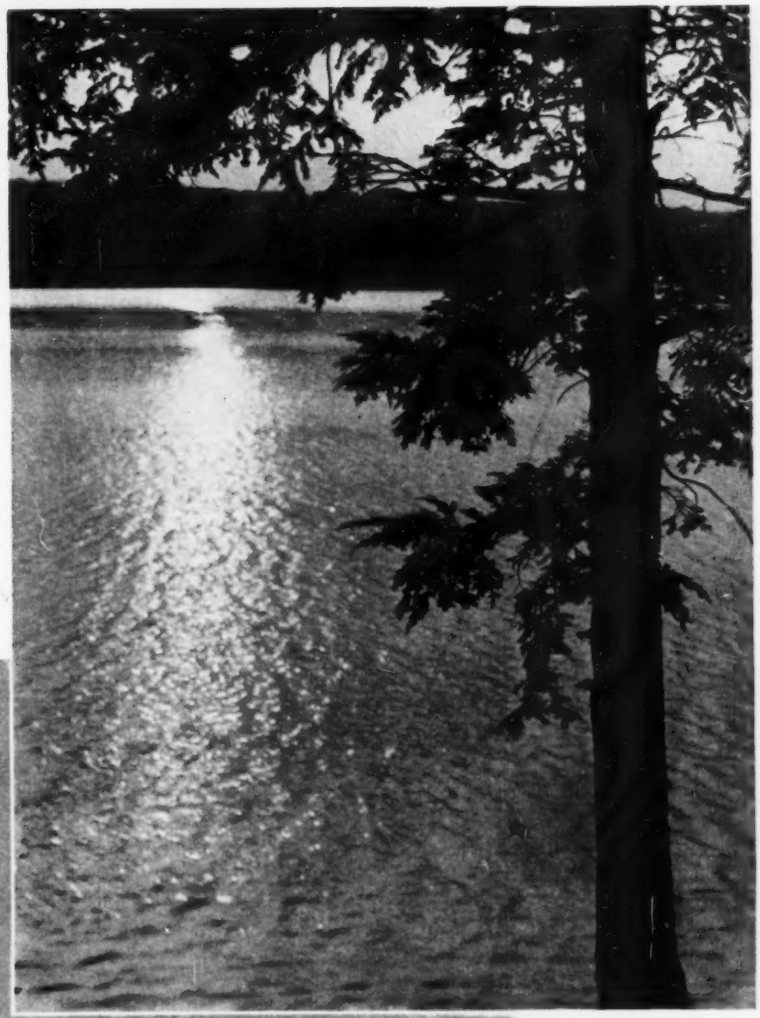
Tapes, Bindings and
Narrow Fabrics

2046-48 Amber Street
PHILADELPHIA, PA.

Sterling
Ring Travelers
RESOLVE
To give STERLING RING TRAVELERS a chance to see if they cannot improve your SPINNING and TWISTING.
Call our Southern representatives
GEORGE W. WALKER
Box 1894, Greenville, S. C.
D. J. QUILLEN
Box 443, Spartanburg, S. C.
STERLING RING TRAVELER CO
FALL RIVER, MASS.

Standard SILICATE

Reduces WATER TREATING costs



Textile mills, other industrial plants and municipalities find that the addition of Standard Silicate saves up to 45% of the lime and alum or ferrous sulphate needed to properly clarify the water supply. This new process can also be applied to increase the capacity of existing water filtration plants.

Our technical staff will gladly demonstrate how this saving can be accomplished.

STANDARD SILICATE DIVISION
Diamond Alkali Company
General Offices • PITTSBURGH, PA.
Plants at Cincinnati · Jersey City · Lockport, N. Y. · Marseilles, Ill.

Old DRYERS are COSTLY

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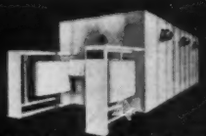
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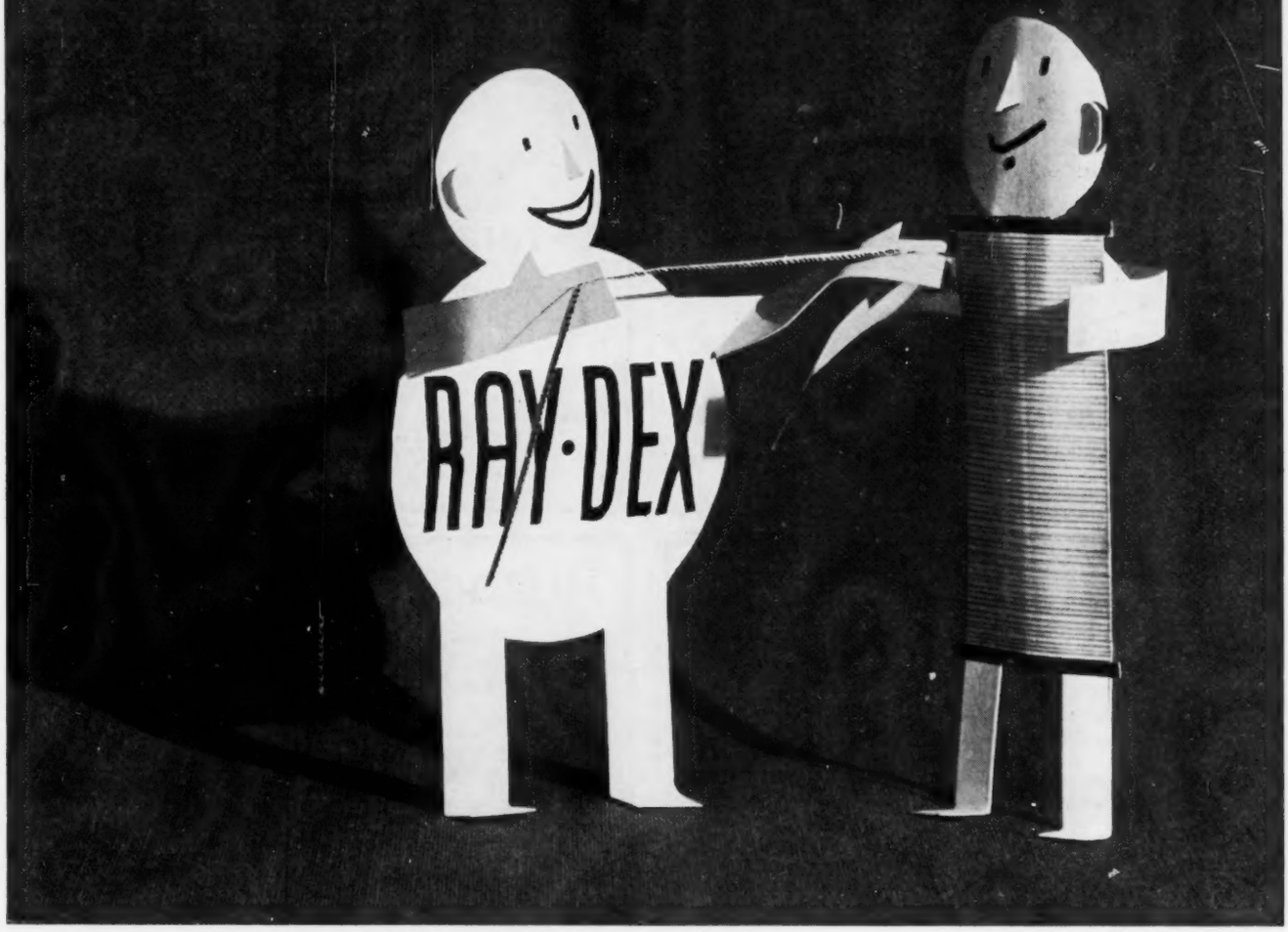

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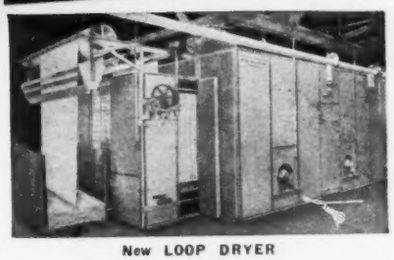

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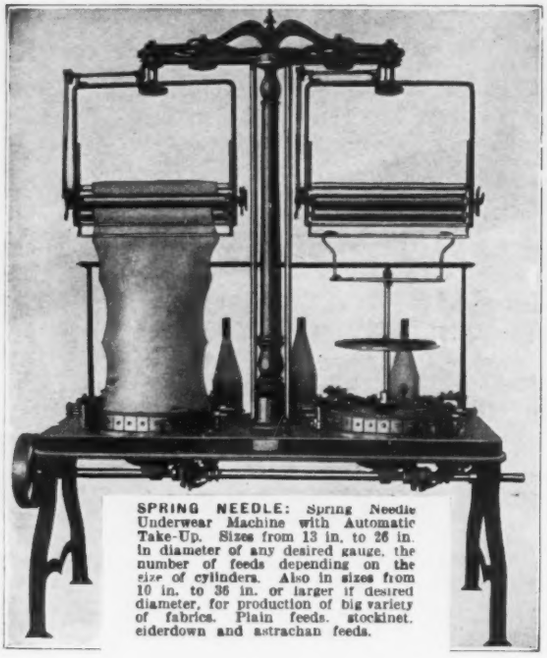

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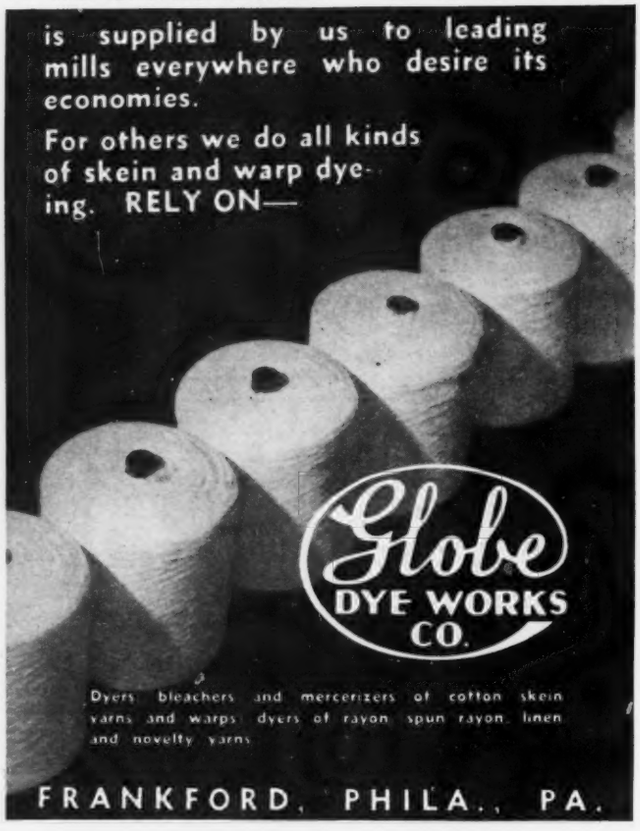

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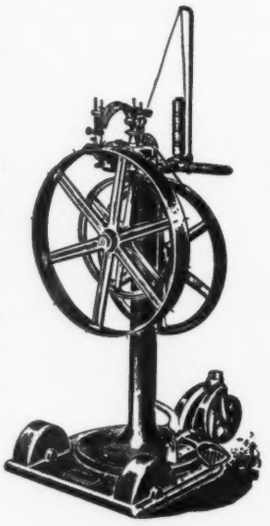

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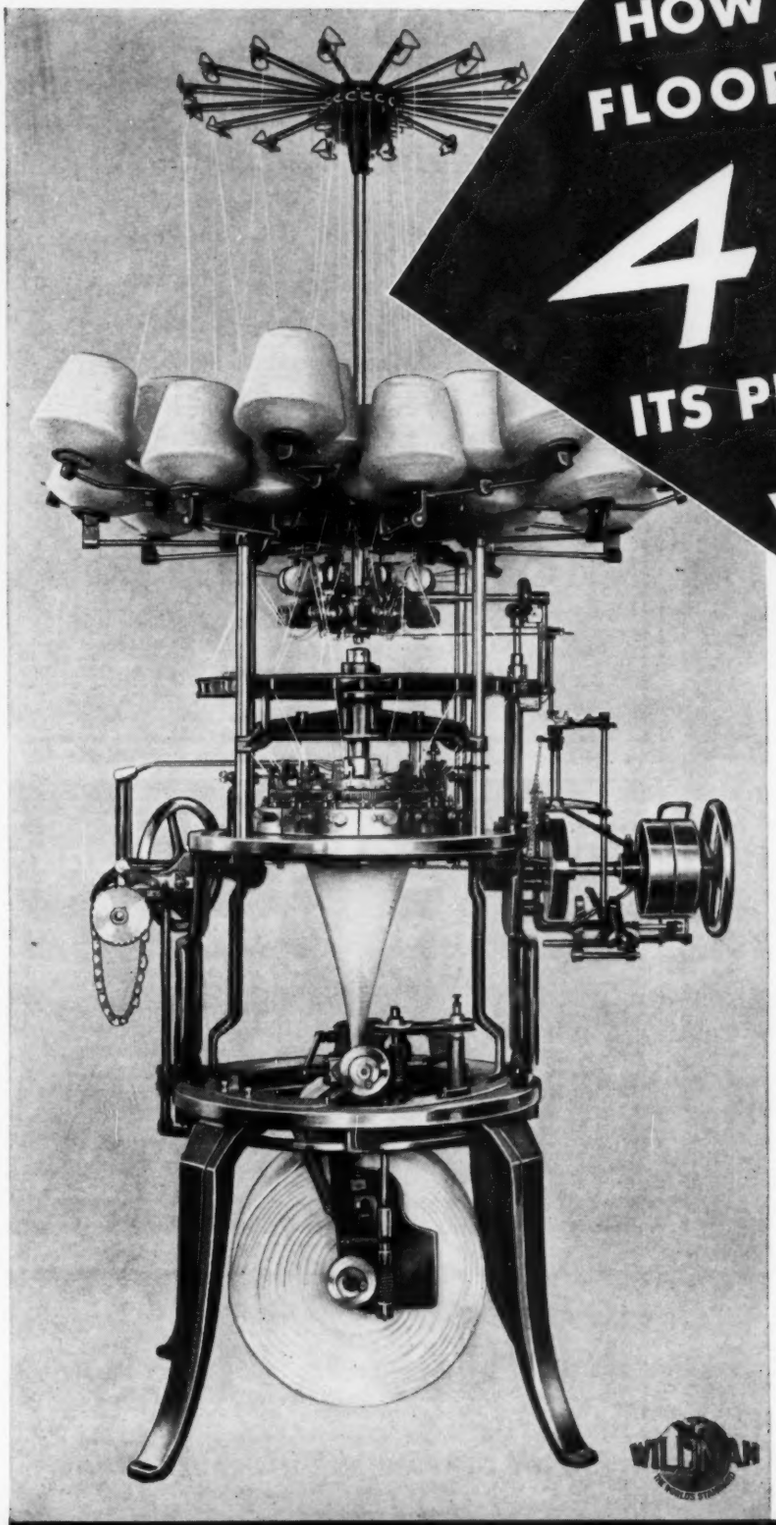

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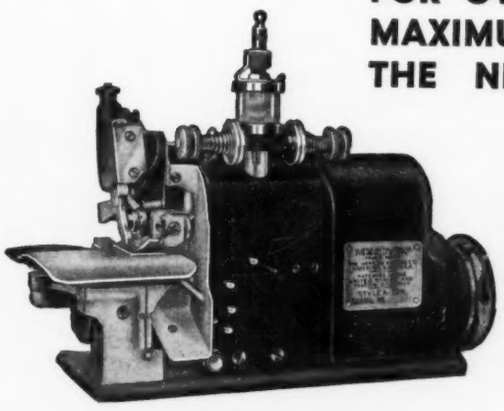

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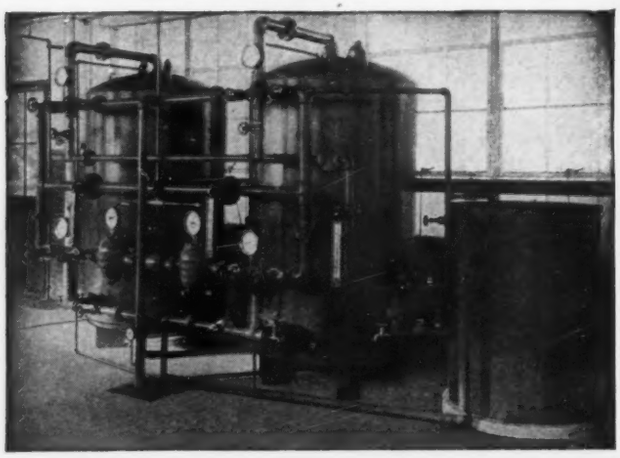

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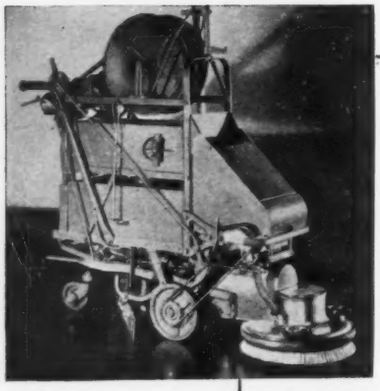

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POSITIONS VACANT

IN TEXTILE SPECIALTY HOUSE Philadelphia vicinity for chemist with cotton and rayon finishing and dyeing experience, preferably one familiar with the make-up and manufacture of oils, softeners, sizes etc. used in the industry. Good future assured to the proper man. Permanent position. State expected salary in first letter. P-179, Textile World, 330 W. 42nd St., New York, N. Y.

ASSISTANT SUPERINTENDENT for rayon weaving plant. Experience in southern mills operating on quantity and quality production of staple fabrics preferred. Apply, stating qualifications to P-186, Textile World, 330 W. 42nd St., New York, N. Y.

POSITION OPEN for man between thirty and thirty-five years of age having experience on fine fabrics made from rayon or cotton yarns. Some previous experience on research and a knowledge of synthetic and natural fibre yarn handling helpful but not necessary. Excellent opportunity with large manufacturer for man who can qualify. Write giving full information concerning education and experience. P-182, Textile World, 330 W. 42nd St., New York, N. Y.

GRADUATE ENGINEER. Must have fine engineering background preferably with strong investigative leaning. Preferably below 35 years of age. Textile experience definite advantage. P-184 Textile World, 330 W. 42nd St., New York, N. Y.

POSITIONS WANTED

(See also "Selling Opportunity Wanted")

EXECUTIVE having many years experience in manufacturing, styling and originating silk, rayon and acetate cloths. Understand mill operations thoroughly and enjoy a very good background. Familiar with northern and southern mills also New York markets. PW-136, Textile World, 330 West 42nd Street, New York City.

FIXING FOREMAN OR SUPERINTENDENT. Employed at present. Would like to make change. Can train help in all departments. Knows American and German full fashion machines thoroughly. Those interested in quality and low overhead investigate. A proven record of twenty years. PW-183, Textile World, 330 W. 42nd St., New York, N. Y.

FULL FASHIONED HOSIERY SUPERINTENDENT. 25 years experience on all makes of machines. Able to instruct and teach help, do all fixing including looping and seaming machines. Guarantees successful operation of hosiery plant. Now employed, wishes to make change. PW-185, Textile World, 330 W. 42nd St., New York, N. Y.

SECOND HAND OF FINISHING Experienced in woolen and worsteds, full knowledge of all departments, including ability to properly grind Shears. PW-170, Textile World, 330 W. 42nd St., New York, N. Y.

ABLE TO ANALYZE and calculate cloth with 17 years practical and theoretical experience in the Silk and Rayon business. Philadelphia Textile School graduate, 35 years of age and married, can take position immediately. PW-153, Textile World, 330 West 42nd Street, New York City.

SUPERINTENDENT OR OVERSEER of Spun rayon weaving by a young man experienced with dress and sheer goods lininga fancy and novelty box and dobby weaves C&K Stafford and Draper looms. PW-190, Textile World, 330 W. 42nd St., New York, N. Y.

FINISHER, ASS'T SUPERINTENDENT. 19 years experience finishing all types cotton, rayon, spun rayon piece goods. Printed, Dyed and White. Textile School graduate. Aggressive. Excellent references. PW-193, Textile World, 330 W. 42nd St., New York, N. Y.

INFORMATION WANTED

PRESENT whereabouts of J. F. Scott (Sometimes Col. Jaff Scott) late of North Carolian Virginian and Hotel Albert, New York. Promoter of Remie Development. Write or Wire. IW-194, Textile World, 330 W. 42nd St., New York, N. Y.

BUSINESS OPPORTUNITY

A British Firm

Of textile Engineers of world wide repute are open for an Agency for Textile Machinery or Accessories. BO-175, Textile World, 330 W. 42nd St., New York, N. Y.

SEARCHLIGHT SECTION

(Classified Advertising)

EMPLOYMENT : "OPPORTUNITIES" : EQUIPMENT
BUSINESS : : USED OR RESALE

UNDISPLAYED —— RATES —— DISPLAYED

10 CENTS A WORD. MINIMUM CHARGE $2.00

Positions Wanted **(full or part time salaried employment only) ½ the above rates payable in advance.**

***Box Numbers*—Care of publication New York, Chicago or San Francisco offices count as 10 words.**

***Discount* of 10% if full payment is made in advance for 4 consecutive insertions.**

Individual Spaces **with border rules for prominent display of advertisements.**

1 inch $6.00
2 to 3 inches ..... 5.75 per inch
4 to 7 inches ..... 5.50 per inch

An advertising inch **is measured vertically on a column—3 columns—30 inches to a page. Contract rates on request.**

Over Forty Years of Dependable and Confidential **EMPLOYMENT SERVICE**

for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.

Phone: Liberty 6547 **294 Washington Street, Boston, Mass.**

(POSITION WANTED)

KNIT UNDERWEAR MILL MAN

Lengthy diversified practical experience in plant operations—straight line production setups—straight line cutting room layouts. Am a good interlocking pattern maker—assuring savings on labor and waste.

Know all sewing and finishing machines and have a wide experience on supervising the construction of mens—ladies—childrens polo shirts and outerwear. Able to apply practical corrective measures of difficult problems—know how to handle help.

Interested only in permanent position. American—Christian—active—38—healthy and a hard worker.

PW-189, Textile World, 330 West 42nd St., New York

SELLING OPPORTUNITIES
OFFERED—WANTED
Selling Agencies—Sales Executives
Salesmen—Additional Lines

WOOLEN MILL—COMPLETE UNIT

FOR SALE OR LEASE—7 sets cards—2592 spindles—Automatic looms—stock and piece dyeing—finishing. Many modern buildings. Own water supply with water rights. Low property taxes. Friendly labor. Close to New York.

BO-187, Textile World
330 W. 42nd St., New York City

OPPORTUNITY WANTED

SALES REPRESENTATIVE. Experienced. Would like to contact cotton yarn or rayon account desiring adequate representation in New England territory. Highest references furnished as to character and ability. SA-191, Textile World, 330 W. 42nd St., New York, N. Y.

YARNS WANTED

We buy all your surplus **YARNS**—look over your **YARN** stock—turn your surplus into **CASH**—no quantities too large or too small to handle—send full particulars today.

WAVERLY YARN CO., Dept. T
5 Waverly Place, New York, N. Y.
Gramercy 7-4519

SOLE REPRESENTATION WANTED

in **Philadelphia** territory for sale of **Fabrics** and other **Textile Products.**

20 years' experience in the manufacturing and merchandising of textiles.

RW-192, Textile World
330 W. 42nd St., New York City

WANTED
USED BACKFILLING MACHINE

("Tommy Dodd" Starch Mangle) in good condition for backfilling 50" width, cotton bag cloth. State dimensions between standards, diameter and face of rolls, kind of rolls, name of maker, price crated and loaded on cars.

W-195, Textile World
330 West 42nd St., New York City

PATENT YOUR IDEAS
send a Sketch or Model of your invention for
CONFIDENTIAL ADVICE
FREE CONSULTATION LITERATURE
IDEAS
Z. H. Polachek
1234 BROADWAY NEW YORK
PATENT ATTORNEY ENGINEER
U. S. Pat. Off. records searched for ANY Invention or Trade Mark

Wanted
BOX LOOMS
64" automatic 4x1
106" automatic 4x1

W-181, Textile World
330 W. 42nd St., New York City

Wanted

Mill to manufacture

Shoddy wool blankets

Year 'round contract

Write for information

JOHNSON COMPANY

P. O. Box No. 30, Niagara Square Station, Buffalo, N. Y.

MACHINERY SPECIALS AT ATTRACTIVE PRICES

CARDING & SPINNING MACHINERY
1—French **Worsted Spinning Plant**
1—Prince Smith **Back Washer and Dryer**
1—Wadsworth **Back Washer and Dryer**
1—Set of 48x60" all iron Lombard **Cards**, 3 cylinders newly clothed, with breast
1—48" C. & M. Fearnaught **Mixing Picker**
1—48" Sargent Duplex **Burr Picker** Auto Feed
1—22" C. & M. Atlas **Hair Picker**
1—C. & M. **Flock Cutter**
1—P. & S. 72" Single Apron **Raw Stock Dryer**
1—10' Sargent **Cone Duster**—Crusher Rolls & Feed
2—6'6" Sargent **Cone Dusters**
1—48" & 1—60" Furbush **Card Grinder**

WARPING & WINDING MACHINERY
1—90" Saco Lowell **Worsted Warp Slasher**
2—D. & F. **Warp Dresser**, 92" Brass Plate
3—6 drum Worcester **Compressor Spoolers**
4—72" to 100" Pin & Pinless **Warping Mills**
1—Oswald Lever **Chenille Cutter**

WEAVING MACHINERY
18—82" C. & K. **Automatic Looms**, 25 har., 4x1 motor drive, warp stops
48—45" C. & K. **Automatic Looms**, 20 har, 4x1 motor drive, warp stops
12—Three Quarter C. & K. **Axminster Looms**
12—Four Quarter C. & K. **Axminster Looms**
10—92" C. & K. **Looms**, 4x4 box, 25 har.
10—72" C. & K. **Looms**, 20 har, with multipliers
14—48" C. & K. **Rug Looms**, 3x3 box, 2 har.
6—48" C. & K. **Pattern Looms**, 4x4 box, 25 har.
20—Halton, 400 hook, D.L.S.C. **Jacquards**
20—Crompton & Knowles 600 hook D. D. S. C. **Jacquards**

DYEING & FINISHING MACHINERY
2—C.&M. 4 burner **Gas Singer**, 1—2 Burner 64"
1—66" Four cylinder **Brush**
1—80" Double cylinder **Cloth Brush** and **Sander**
1—66" Steiner **Dewing Machine**
1—72" Yorkshire 2 **Bowl Crab**
1—4 Bowl Birch Continuous **Crab** 66" wide
3—96", 36 roll, D.A. Woonsocket **Nappers**
1—80", 14 roll D.A. Borscher **Napper**
1—66½" D. Gessner Century Cloth **Press**
2—P. & W. **Doubling, Rolling & Measuring Machines** 66"—76"
1—Continuous **Skein Yarn Dryer**
1—Set (19 cans) Butterworth **Drying Cans** 65" face
1—60" P. & W. **Plush Shear**
1—58", 4 cyl. Hermas **Shear** Sewing & Rolling attachment
1—60" Tolhurst **Extractor**
1—20" Sample **Extractor**
1—C. & M. 66" **Wetting Out Machine**

FRANK W. WHEELER
1837 E. Ruan St. Philadelphia, Pa.

FOR SALE

WOOLEN

1—36" Automatic **Willow**
1—Schofield 36" Mixing **Picker**
1—C & M 48" Fearnaught **Picker**
1—Sargent Single Conveyor Raw Stock **Dryer**
1—Two Set Woolen Yarn **Mill**
1—Eleven Set Woolen Yarn **Mill** with 21 Blanket **Looms** 110" wide

WORSTED

3—T W Single Can **Gill Boxes**, 7/16" pitch
1—T W Single Baller **Gill Box**, 7/16" pitch
2—H & S 3 Head, 3 Ball, **Gill Boxes**, ¾" pitch
2—H & S 4 Head Melanging **Gill Boxes**, ⅜" pitch
1—P S 6 Head Melanging **Gill Box**, 7/16" pitch
2—H & S 12 spindle **Reducers**, 9"x5"
1—P S 156 spindle 4 Ply, Universal **Twister**, 3½" rings
4—Saco Lowell 200 spdle Ring **Twisters**
1—Altemus 12 Drum Compression **Spooler** with extra large swifts

WEAVING

1—Altemus 4 head **Warp Splitting Machine**
1—Altemus 3 head **Warp Splitting Machine**
3—Saco Lowell **Slashers**
2—American **Warp Drawing-in Machines**, style VLW 2
15—#90 Universal **Winders**, 20 spindle
148—Draper Model E Auto. **Looms**, 40"
41—Lowell Automatic **Looms**, 40"
4—Whitin **Quillers**, 378 spindles
1—Gessner 66" Double Acting **Napper**
1—C & M 66" Single Acting **Napper**
1—70" Double Acting **Napper**, 24 rolls
1—Gessner 74" **Press**
1—C & M 66" Single Acting **Shear**

MICHAEL KERWIN
210 E. Courtland St., Philadelphia, Pa.
EXPORT TRADE SOLICITED

Extraction Turbine

937 KVA **General Electric**, 250 lbs. initial; 5-30 lbs. bleeder pressure. With surface condenser, switchboard. Like new.
323 HP **Springfield Cross Drum W. T. Boiler**; 250 lbs. ASME.

Power Plant Equipment Co., Inc.
39 Cortlandt Street, New York

MACHINE TOOLS

Lathes, Shapers, Automatics, Drills, Planers, Milling Machinery, Boring Mills, Grinders, etc.

Large buyers of surplus machine tools and sellers of guaranteed rebuilt metal working machinery—Reliable, dependable.

SUN MACHINERY COMPANY
36 Van Vechten St., Newark, N. J.

FOR SALE

CLOTH SHEAR

36" double roller in excellent condition. Sell cheap. Inquire

A. WEISWASSER
1024 So. 60th St. Phila., Pa.

FOR SALE

100 M 8" **Plain Wool Filling Bobbins.**
150 M 8" **Wool or Worsted Automatic Filling Bobbins.** Also 200 M 8¾" **Automatic Loom Bobbins.** Samples and price on request.

FS-144, Textile World
330 W. 42nd St., New York City

FOR SALE

LOOMS

114 Draper 32" Model P. 239 Draper 40" Model P. Some of these looms were run less than 20 months. Southern location.

O. F. FEIL
C&S Bank Bldg., Atlanta, Ga.

FOR SALE

Winding Machinery

10—**Tinsel Serving Machines**
20—**No. 90 Universal Cop Winders**
7—**Cotton or Rayon Winders Silk Type**, from skein to spools—6x3½
7—**Atwood Silk or Rayon Winders**, skein to spool 4 5/16
1—**Foster No. 12 Cone Winder** 60 spdls, no swifts
1—**Easton & Burnham Carpenter 54" reel** 60 spdls.

A large quantity of caps, tubes, spools, etc.

HENRY KELLERMAN
R.D. 1 Trenton, N. J.

FOR SALE

RAW STOCK DRYER & SQUEEZE ROLLS

SARGENT raw stock dryer with feed and SARGENT squeeze rolls with feed.
DRYER Cast iron with insulated panels, sectional apron.
SQUEEZE ROLLS late type, little used.
Production squeezed and dried — 5 to 800 lbs. per hour.
All in first class running order.

FRED WHITAKER CO.
Ridge Ave. & Scott's Lane
Philadelphia, Pa.

FOR SALE

Davis & Furber woolen cards 48"x60"
C & K automatic looms 92"
James Hunter chinchilla machines 72"
Also some additional preparatory and finishing machinery
Excellent condition

FS-188, Textile World
330 W. 42nd St., New York City

FOR SALE

COP WINDER

LAZENBY — 15-spindle Improved Type. Rebuilt throughout.
Practically New.

FS-180, TEXTILE WORLD
330 W. 42nd St., New York City

HOSIERY EQUIPMENT

USED OR REBUILT
Knitters: Ribbers: Loopers: Seamers: Boarding: Dyeing.
Send for Bulletin No. 123
Special attention to export trade

C. M. FRENCH
Commercial Trust Bldg., 15th & Market St.
Cable: Frenchtex-Philadelphia Philadelphia, Pa.

AIR COMPRESSORS

BELTED—176 ft., 355 ft., 540 ft. 676 ft., 752 ft. & 1300 ft.
ELECTRIC— 355 ft., 528 ft., 676 ft. 807 ft., 1302 ft., 1728 ft. & 2200 ft. 3022 ft., 3600 ft. & 5000 ft.
STEAM—368 ft., 500 ft., 800 ft., 1221 ft., 1640 ft., 2200 ft. & 3000 ft.
DIESEL—368 ft., 603 ft., 900 ft. & 1300 ft.

R. C. STANHOPE, INC.
875 Sixth Ave. New York, N. Y.

New "SEARCHLIGHT" Advertisements

must be received by December 2nd to appear in the January issue

Address copy to the Departmental Advertising Staff

TEXTILE WORLD
330 West 42d St., New York City

FOR SALE

Burr Wheels, all gauges.
Spring Needle Knitting Machine parts.
Tolhurst Extractors.
Mixing and Burr Pickers.
Spring and Latch Needle Knitting Machines.
Lathes, Drill Presses, etc.
Used Textile Machinery of all kinds.

A. J. CADY
P.O. Box 522 Troy, New York

JOHN WRIGHTSON

201 Drexl Bldg., 5th & Chestnut St., Phila, Pa.

FULL-FASHIONED & SEAMLESS HOSIERY MACHINERY

ALL IN ONE HANDBOOK

—civil engineering —electrical engineering —mechanical engineering —engineering mathematics —engineering fundamentals

Now in one convenient volume, the most important useful essentials of five major subjects, clearly, concisely presented for handy desk and field use. O'Rourke's GENERAL ENGINEERING HANDBOOK offers what countless engineers have been asking for—one handbook of 900 pages of practical information, useful reference data, specific facts, definite methods, essential formulas, in major fields of engineering. Answers scores of needs for quick information in other fields as well as your own.

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Send book. I will pay for or return it in 10 days. — Give name, address and business connection.
STW
USE THIS TAB

Price $4.00. Read it on approval.

McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York City.

24—**Hetherington Nasmith Combers**
48—**H. & B. 40" Cards**, 10" & 12" coilers
28—**Whitin 40" Cards**, 12" coilers
28—**Saco-Pettee 40" Waste Cards** with fancy
250—**Draper 40" Model E Automatic Looms**
60—**Dels. Whitin Drawing**, 12" coilers, Model F
2—**Whitin 12x6x9½x76 Spindle Slubbers**

J. H. WINDLE & COMPANY
Textile Machinery Tel. Gaspee 6464
231 So. Main St., Providence, R. I.

MODERN

AIR COMPRESSORS

All Types and Sizes
Rebuilt-Guaranteed

EARL E. KNOX COMPANY
7 West Second St. Erie, Pa.

LIQUIDATING THE

Machinery and Equipment

of the

TEXTILE DYEING & PRINTING CO. of AMERICA

FAIRLAWN **NEW JERSEY**

Main Items of Equipment

7 PRINTING MACHINES, 48" to 64", 4 to 12 colors

Copper Print Rollers
Agers
Print Washers
Stainless Steel Dye Tubs
Centrifugal Extractors
Suction Extractors
Decaters
Doublers
Palmers
Embossers
Tenter Frames
Boil Off Units
Button Breakers
Folding Equipment
Loop Dryers
Singers
Rubbing Machines

● *Send for complete illustrated catalog—Inspect Now!*

Consolidated Products Co., Inc.

River Road—Fairlawn, N. J. **Phone LAmbert 8-0600**

Cable Address: "Equipment, N. Y."

HARRY STEPHENSON

IMPORTER, DEALER AND MANUFACTURER

TEXTILE MACHINERY AND APPLIANCES

NEW AND USED

River Works, Andover, Mass.

JOHN J. McCLOSKEY, Inc.

MANUFACTURERS AND DEALERS

TEXTILE MACHINERY OF ALL TYPES

APPRAISALS WOOLEN—WORSTED—COTTON LIQUIDATIONS

NEW AND USED

Philadelphia Office: 140-142 So. Front Street. Factory Warehouse: Collingswood, N. J.

BAY STATE TEXTILE CO.

—MACHINERY—

BOBBINS — SKEWERS — SPOOLS — SUPPLIES

New and Used, Reclaimed, Repaired, Refinished

220 HARTWELL ST. **FALL RIVER, MASS.**

In Addition to our Regular Stock of Reconditioned and Guaranteed:

Universal #50 Winders
Universal #90 Winders
Oswald Lever Bottle Bobbin Winders
Foster Model #12 Winders
Atwood Skein Winders
Easton & Burnham Skein Winders
Atwood Single and Double Deck Spinners
Atwood 5B Spinners

We Have the Following For Sale:

3—Alfred Suter Hand Seriplanes
1—Power Seriplane with 6 boards and inspection stand
1—Alfred Suter Single Strand Strength Tester for silk
2—Alfred Suter Silk Quadrants
1—Alfred Suter Cotton Quadrant
2—Alfred Suter Silk Reels
1—Alfred Suter Cotton Reel
2—Brown & Sharpe Yarn Reels
2—Alfred Suter Twist Testers with 3" take-up
2——Scott 10" Twist Testers
1—Knapp Yarn Reel
2—Brown & Sharpe Grain Scales

Also

3—Clipper Belt Lacers
2—Detroit Belt Lacers
2—5 Spindle Balling Machines
2—Atwood 4 Section Belt Driven Reel Mills

Gaines Textile Machinery Co.

141 W. 17TH ST.,
NEW YORK CITY

FOR SALE

Universal No. 50 Coners-Tubers, Rebuilt.
Universal No. 90 Winders.
Foster Mod. 12 Coner 30 sp. 40 sp.
Throwing Machinery — Winders — Spinners.
Atwood 5B Spinners, Bobbins.
Knitting Machines — Loopers.
Winder Supplies and Parts.
Vertical Dry Cans—16 can 45"
Tisch chenille Frames—gimp etc.
Complete Braiding equipment—
Rebuilt Machinery for EXPORT.

AMBLER TEXTILE MACHINERY CO.

S.E. Cor. Bodine & York Sts., Phila., Pa.

FOR SALE—IN STOCK

2—D&F 3-cyl. 48x60" dia. all iron Woolen Cards complete—Reconditioned.
1—D&F 48" Fearnaught Picker—Rebuilt.
3—Foster 80 spdl Cone Winders Model 101.
1—Sargent Cone Duster 6½'. Rebuilt.
1—Kitson English type Rag Picker.
1—D & F 36" Mixing Picker and Feed.

We specialize in Worsted Yarn Machinery

FRANK G. W. McKITTRICK CO.

60-64 Fletcher St., Lowell, Mass.

Textile Machinery and Equipment

We Own and Offer For Sale

1—MONFORTS 80" 36-roll DOUBLE-ACTING NAPPER. Ball bearing.
1—BROWNELL MODEL "G" TWISTER, 16 spindles.
8—SACO-LOWELL SIZE KETTLES with Agitators. (6—36"x36"; 2—42"x42").
38—PARKS-CRAMER motor driven HUMIDIFIERS.
350—G.E. ½ HP LOOM MOTORS, 220 volt, 60 cycle, 3 phase, complete with base and switch.

A. F. FYANS

Textile Machinery

(Office and Warehouse)

56 Water St. **Fall River, Mass.**

1938
MANAGEMENT OBJECTIVES

Increase Your Share Of The Business!

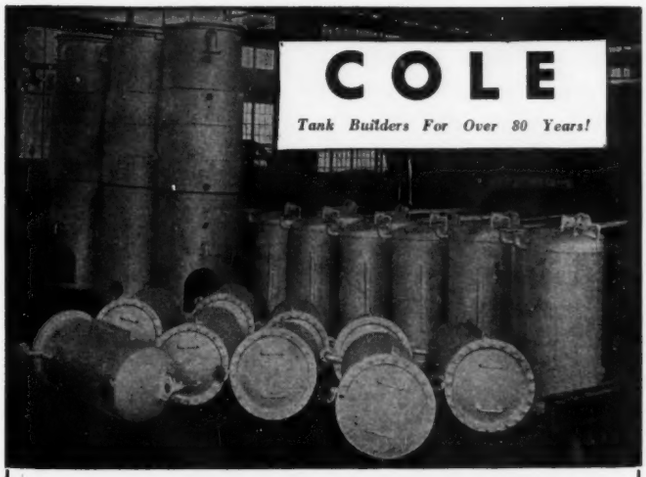
Is THIS in the public welfare? If you have a superior product at a fair price it decidedly is!

This is an objective worthy of a high place in your policies *all the time* — but *particularly* when the level of business is less than normal.

Dramatic, skillful and *consistent* advertising is doing it for many and can do it for you, simply by educating more and more people to recognize the many benefits of buying your product — now.

Ask your advertising agency whether your appropriation is adequate to accomplish this objective of increasing your share of the business — now.

Published in the interests of greater sales, employment and profits in 1938 by the
McGRAW-HILL PUBLISHING COMPANY, INC., NEW YORK, N.Y.



Nickel-clad or Stainless Vessels

¶ Starch kettles, digestors, vats, and other vessels of this durable metal. Your designs or ours—"custom made" to order.

TANKS, TOWERS, BOILERS, KIERS, KETTLES STANDPIPES, SMOKESTACKS, AIR RECEIVERS, Etc.

Write for "Tank Talk"—No. 1-F

R. D. COLE MANUFACTURING CO.
ESTABLISHED 1854
NEWNAN GEORGIA

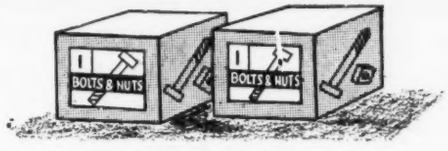
Style 69

ELEVATED BASKET

One of the many specialized types offered to meet varying Textile Mill conditions.

For 40 years standard

W. T. **LANE** & BROS., Inc.
Manufacturers : POUGHKEEPSIE, N. Y.



Bolts and Nuts to You
But More Wind In the *Sales*

Remember the cracker box and sugar barrel days when most commodities were bought in bulk? Now even carpet tacks, bolts and nuts are sold in individual packages. This is being done to identify a line of products heretofore unbranded, and to produce more sales.

So no matter what product you have, we can suggest ways of novel and distinctive packaging or we can take your present package and, we believe, increase its attractiveness and *sales effectiveness.* Of if you have several packages, we can *match them,* thereby co-ordinating the style, theme and color scheme and unifying the impressions to be conveyed to the public through a family resemblance.

Designs for our "CO-ORDINATED PACKAGING", or individual packages will be submitted in the way of folding and set-up boxes, cartons, counter and window displays, shipping containers, etc. *When it comes to packaging, come to Old Dominion.*

OLD DOMINION BOX CO., Inc.
LYNCHBURG, VIRGINIA

Winston-Salem, N.C. Martinsville, Va. | Burlington, N. C. Charlotte, N. C. | Asheboro, N. C. Kinston, N. C.

Old Dominion Paper Boxes

NOW—A MORE EFFECTIVE, ECONOMICAL WAY
to keep your humidifying system clean

NOW, you can prevent spray heads from clogging, stop pipe lines from choking . . . just by circulating a solution made up with the recommended Oakite material through the humidifying system four or five times a year.

You can do this over any week-end, or whenever the plant is shut down for a day or two. The penetrating detergent action of the cleaning solutions loosens and removes all dirt, slime and algae . . . leaves every inch of pipes, tanks and sprays absolutely CLEAN!

This regular, thorough Oakite method of cleaning is your best safeguard against humidifying trouble. And . . . *it is surprisingly inexpensive.* Write for full details.

Manufactured only by
OAKITE PRODUCTS, INC., 42 Thames St., New York, N. Y.
Branch Offices and Representatives in All Principal Cities of the U. S.

OAKITE *certified* **CLEANING**
MATERIALS & METHODS FOR EVERY CLEANING REQUIREMENT

13th

SOUTHERN TEXTILE EXPOSITION

April 3 to 8, 1939

TEXTILE HALL

GREENVILLE, SOUTH CAROLINA

Standard and improved installations, machinery, accessories, building and operating supplies, primary and fabricating materials, parts, and office equipment will be displayed at the Exposition.

Tickets will be given to those engaged in the textile industry, including executives, office and operating personnel, department heads, assistants, and operatives.

Southern Railway will operate special sleeping cars daily, from north and south, to be parked in Greenville all day, as has been done for past expositions.

Our Housing Committee will have many rooms available, so that all who attend the Exposition may be assured of comfortable quarters.

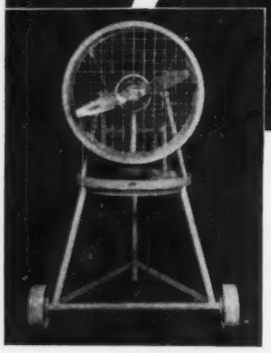
This exposition is for those allied with the textile industry. Due to the large attendance and crowded aisles children under sixteen years cannot be admitted.

TEXTILE HALL

GREENVILLE, S. C.

Fans FOR ALL INDUSTRY

VENTILATING SOUTH BEND EQUIPMENT



UNBREAKABLE Forged Aluminum Alloy Blades. Scientific blade design gives uniform air velocity across entire area—more air per h. p. Other exclusive features developed from experience in helping to solve air moving problems of all kinds for many of America's largest industries. Free advisory service by competent engineers. Consult us without obligation. Write for latest catalog of complete line. Contains valuable ventilation charts and data.

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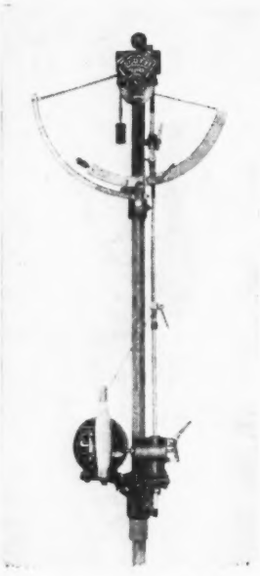

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0 to 5 pounds and 0 to 15 pounds
0 to 5 pounds and 0 to 20 pounds
0 to 300 grams and 0 to 1000 grams
0 to 1000 grams and 0 to 5 kilograms
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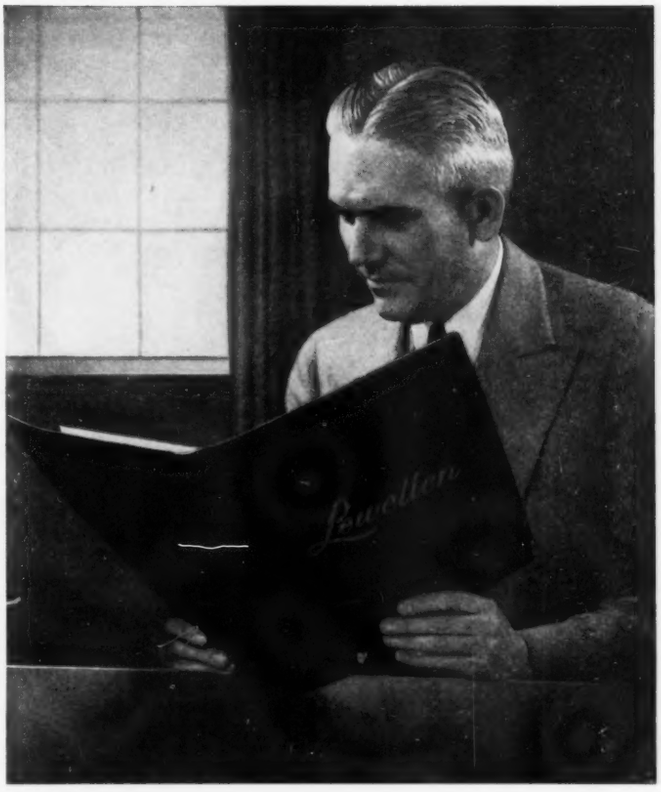

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